



5995 Greenwood Plaza Blvd.  
Suite 100  
Greenwood Village, CO 80111-4710  
303-571-5377  
303-629-7467 (fax)

**TRANSMITTAL**  
**No. 13J2027-0032**

**PROJECT:** ERC-Eating Recovery Center

**DATE:** 01/08/2014

**TO:** Boulder Associates  
1426 Pearl St #300  
Boulder CO 80302

**RE:** 262000 Gear Package

**ATTN:** Tim Boers

**Ph/Fax:**

**JOB:** 13J2027

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
<input checked="" type="checkbox"/> Shop Drawings	<input checked="" type="checkbox"/> Approval	<input type="checkbox"/> Approved as Submitted
<input type="checkbox"/> Letter	<input type="checkbox"/> Your Use	<input type="checkbox"/> Approved as Noted
<input type="checkbox"/> Prints	<input type="checkbox"/> As Requested	<input type="checkbox"/> Returned After Loan
<input type="checkbox"/> Change Order	<input checked="" type="checkbox"/> Review and Comment	<input type="checkbox"/> Resubmit
<input type="checkbox"/> Plans		<input type="checkbox"/> Submit
<input type="checkbox"/> Samples	<b>SENT VIA:</b>	<input type="checkbox"/> Returned
<input checked="" type="checkbox"/> Specifications / Product Data	<input checked="" type="checkbox"/> Attached	<input type="checkbox"/> Returned for Corrections
<input type="checkbox"/> Other:	<input type="checkbox"/> Separate Cover Via:	<input checked="" type="checkbox"/> Due Date: 01/17/2014

**NOTES:**

Item	Package	Code	Rev.	Copies	Date	Description	Status
Submittal	262200	262200-01	1	1	01/08/2014	Low Voltage Transformers	Architect Review
Submittal	262413	262413-01	1	1	01/08/2014	Switchboards - Product Data	Architect Review
Submittal	262416	262416-01	1	1	01/08/2014	Panelboards - Product Data	Architect Review
Submittal	262416	262416-02	1	1	01/08/2014	Panelboards - Shop Drawings	Architect Review
Submittal	262816	262816-01	1	1	01/08/2014	Enclosed Switches & Circuit Breakers	Architect Review

**CC:**

**Signed:** \_\_\_\_\_  
Scott Metz

SUBMITTED



GH Phipps Construction Companies has reviewed, approved and hereby submits the attached documents with accordance to the Contract Documents.

Note to Subcontractor/Material Supplier:  
Subcontractor/Material Supplier remains responsible for confirmation and Correlation of dimensions at the jobsite, fabrication process and construction techniques; coordination of the work with the work of other trades; and satisfactory performances of the work.

Scott Metz  
Project Engineer

# Eating Recovery Center Submittals

# Wayne's Electric

# BILL OF MATERIAL



imagination at work

209 Kalamath St  
Ste 25  
Denver, CO 80223  
Email: janet.martinez2@ge.com

**Date:** 1/8/2014  
**Telephone:** 720- 52-4 4101  
**Fax:** 720- 58-5 1006  
**Speedi Version:** V 10.12

**Bill of Material**  
**EATING RECOVERY CENTER REV**

**WIN Proposal #:** 6N2-10029-U  
**Proposal/Quote Type:** Base Bid

**Valued Customer,**

We are pleased to offer this proposal for your review. Thank you for allowing us the opportunity to participate on this project. Please do not hesitate to contact us with any questions.

We are pleased to offer this proposal for your review. Thank you for allowing GE Consumer and Industrial the opportunity to participate on this project. Please do not hesitate to contact us with any questions or concerns you may have regarding the information contained herein.

Please note the following:

- 1) Quoting per best interpretation of the one line, panel schedules and specifications provided for REvision dated 12/4/13.
- 2) MDP SWB was quoted as a new SWB as it would be more cost efficient for LSIG Breakers and needed Neutral Current Sensors. Added a 100A Fusible Disconnect for the ATS-LS connection which can be fed by the 125A CB already included in Circuit #8 of current SWB.
- 3) Quoting 277/480v panels fully rated - 120/208v panels fully rated per kAIC ratings and fault schedules provided. As well as CU Bus as per spec. Added Panel KL1A.
- 4) Quoting a GE TVSS external to the MDP with a rating of 150kA/300kA per mode/phase. No spec provided, please advise if needed if not please deduct \$2,650.
- 5) Xfmr's are quoted as AL and at 115 degree C.
- 6) Quote does not include any Start up, Training, Testing or Coordination Study
- 7) RTU's, GEN SET, ATS's and existing items provided by others not included in this BOM.
- 8) Quoted the Qty (2) 200A/3P RTU Disconnects in his BOM if not needed please deduct \$1,500.
- 9) Please review and advise of any changes

"Shipping and Handling charges may apply"

**Item# Qty Description**

- |   |                     |                                       |
|---|---------------------|---------------------------------------|
| 1 | 1                   | Spectra Bolt-On AV1 Swb (108A)        |
|   |                     | <b>MDP</b>                            |
|   | <b>1 Section(s)</b> |                                       |
|   |                     | Estimated Shipping Weight:764 lbs     |
|   |                     | 3P4W/480/277V/60Hz                    |
|   |                     | 1200A 22 kAIC Fully Rated             |
|   |                     | Incoming Feed: Bottom                 |
|   |                     | Incoming Left Feeding Right           |
|   |                     | Type 1 Enclosure                      |
|   |                     | Front Only Access                     |
|   | 1                   | MLO Panel Section 40W                 |
|   | 1                   | Bus Bracing 65000 AIC                 |
|   | 1                   | Fully Rated Copper Bus 1000 A/Sq. in. |
|   | 1                   | Ground: Equipment U/L                 |
|   |                     | <b>1200A Main Lug Only</b>            |
|   | 16                  | Mechanical (1 Hole) AL Lugs           |
|   |                     | <b>Feeders</b>                        |
|   | 2                   | 400A 3 Pole SGHC4 (400A Frame)        |
|   |                     | Programmer (MET) LSIG                 |
|   | 4                   | Mechanical AL Load Lugs               |



imagination at work

Name: **EATING RECOVERY CENTER REV**  
 Prop: 6N2-10029-U

Date: 01/8/2014

Item#	Qty	Description
	2	200A 3 Pole SGHC4 (400A Frame) Programmer (MET) LSIG
	4	Mechanical AL Load Lugs
	<b>Others</b>	
	4	Engraved Nameplates
	4	Screw-On Nameplates
	1	Lifting Brackets
	1	Spectra Bolt-On (C/B feeders only) 38X
	4	3P SGHC4 Single BR Module
	1	Ground Lug
	4	Neutral Lugs
	4	Neutral Lugs
2	1	SPD HIGH EXPOSURE (AC8) <b>MDP TVSS</b> THE277Y150WMN1 TVSS 150KA PER MODE NEMA 1
3	1	ADS Fusible Panelboard (101) <b>PANEL EMDP</b> Single Section Panel Bottom Feed Surface Mnt 3P4W 480Y/277V 18 KAIC 600A Main Lugs
	1	1-LUG/PH 2-CABLE/LUG 2/0 -500 MCM
	1	100A 3P ADS
	1	100A 3 Pole TED4
	1	400A 3 Pole SGHA4
	1	Copper Bus Heat Rated
	1	Front Hinged To Box
	1	Nameplates
	1	CU Grnd bonded AEGCU47
	1	Grnd-Box bonded AEG10
	1	APB3665D Box
	1	APF6523DH Front
	1	APN2306FH2A Interior
4	1	Panelboard, Type AE (101) <b>PANEL LSH1A</b> Single Section Panel Bottom Feed Surface Mnt 30 Ckts 3P4W 480Y/277V 10 KAIC 125A Main Lugs
	1	1-LUG/PH 1-CABLE/LUG #14 -2/0
18		20A 1 Pole TEY
9		20A 1 Pole TEY Space
1		50A 3 Pole TEY
1		Tin Plated Copper Bus 1000PSI
1		Corbin Latch Bolt 15767
1		Metal Directory Card Hldr
1		Screw-On Nameplate



imagination at work

Name: **EATING RECOVERY CENTER REV**  
 Prop: 6N2-10029-U

Date: 01/8/2014

Item#	Qty	Description
	3	Ground-Cu box bonded TGC2
	1	AB31B Box
	1	AF31SLUM Front
	1	AEF3301MBX Interior AXB6
5	1	Panelboard, Type AE (101)
		<b>PANEL SBH1A</b>
		Single Section Panel Bottom Feed Surface Mnt 36 Ckts
		3P4W 480Y/277V 18 KAIC
		400A Main Lugs
	1	1-LUG/PH 2-CABLE/LUG #4 -600 MCM
		OR
		1-LUG/PH 4-CABLE/LUG 1/0 -250 MCM
21		20A 1 Pole TEYF Space
2		20A 3 Pole TEYF
2		70A 3 Pole TEYF
1		100A 3 Pole TEYF
2		125A 3 Pole TED4
1		Sub-feed (DUAL) Main Lugs
1		Tin Plated Copper Bus 1000PSI
1		Corbin Latch Bolt 15767
1		Metal Directory Card Hldr
1		Screw-On Nameplate
1		Same Box Size
1		Ground main lug TGL20
3		Ground-Cu box bonded TGC2
1		AB64B Box
1		AF64SLUM Front
1		AEF3364SBX Interior AXE6B6
6	1	Panelboard, Type AQ (101)
		<b>PANEL LSL1A</b>
		Single Section Panel Bottom Feed Surface Mnt 30 Ckts
		3P4W 208Y/120V 10 KAIC
		100A 3 Pole THQB Main
	1	1-LUG/PH 1-CABLE/LUG #14 -1/0
17		20A 1 Pole THQB
7		20A 1 Pole THQB Space
4		25A 1 Pole THQB
1		30A 2 Pole THQB
1		Tin Plated Copper Bus 1000PSI
1		Metal Directory Card Hldr
1		Screw-On Nameplate
3		Ground-Cu box bonded TGC2
1		AB31B Box
1		AF31SUM Front
1		AQF3301ABX Interior AXB6
7	1	Panelboard, Type AQ (101)
		<b>PANEL SBL1A</b>



imagination at work

Name: **EATING RECOVERY CENTER REV**  
 Prop: 6N2-10029-U

Date: 01/8/2014

Item#	Qty	Description
		Single Section Panel Bottom Feed Surface Mnt 42 Ckts 3P4W 208Y/120V 10 KAIC 225A Main Lugs
	1	1-LUG/PH 1-CABLE/LUG #6 -350 MCM
	1	15A 1 Pole THQB
23		20A 1 Pole THQB
	3	20A 1 Pole THQB
	3	ST 120 VAC (Default)
	3	20A 3 Pole THQB
	1	30A 3 Pole THQB
	1	Tin Plated Copper Bus 1000PSI
	1	Metal Directory Card Hldr
	1	Screw-On Nameplate
	1	Ground main lug TGL20
	4	Ground-Cu box bonded TGC2
	1	AB43B Box
	1	AF43SUM Front
	1	AQF3422MBX Interior AXB6
8	1	Panelboard, Type AQ (101) <b>PANEL SBL2A</b> Single Section Panel Bottom Feed Surface Mnt 84 Ckts 3P4W 208Y/120V 10 KAIC 225A Main Lugs
	1	1-LUG/PH 1-CABLE/LUG #6 -350 MCM
	1	15A 1 Pole THQB
52		20A 1 Pole THQB
20		20A 1 Pole THQB Space
	2	15A 2 Pole THQB
	1	40A 2 Pole THQB
	1	45A 2 Pole THQB
	1	20A 3 Pole THQB
	1	Tin Plated Copper Bus 1000PSI
	1	Metal Directory Card Hldr
	1	Screw-On Nameplate
	1	Power Distribution Panel
	1	Ground main lug TGL20
	7	Ground-Cu box bonded TGC2
	1	AB76B Box
	1	AF76SUM Front
	1	AQF3842MBX Interior AXB6
9	1	Panelboard, Type AQ (101) <b>PANEL KL1A</b> Sec-1 Section 1 of 2 Bottom Feed Surface Mnt 54 Ckts 3P4W 208Y/120V 10 KAIC 400A Main Lugs



imagination at work

Name: **EATING RECOVERY CENTER REV**  
 Prop: 6N2-10029-U

Date: 01/8/2014

Item#	Qty	Description
1		1-LUG/PH 2-CABLE/LUG #4 -600 MCM OR 1-LUG/PH 4-CABLE/LUG 1/0 -250 MCM
1		70A 3 Pole THQB
2		15A 3 Pole THQB
1		100A 2 Pole THQB
1		35A 2 Pole THQB
1		25A 2 Pole THQB
17		20A 1 Pole THQB
17		ST 120 VAC (Default)
1		150A 3 Pole TQD
1		Sub-feed (DUAL) Main Lugs
1		Tin Plated Copper Bus 1000PSI
1		Metal Directory Card Hldr
1		Screw-On Nameplate
1		Power Distribution Panel
1		Same Box Size
1		Ground main lug TGL20
4		Ground-Cu box bonded TGC2
1		AB76B Box
1		AF76SUM Front
1		AQF3544SBX Interior AXQ3B6
Sec-2		Section 2 of 2 Bottom Feed Surface Mnt 84 Ckts 3P4W 208Y/120V 10 KAIC 400A Main Lugs
1		1-LUG/PH 1-CABLE/LUG #4 -600 MCM OR 1-LUG/PH 2-CABLE/LUG 1/0 -250 MCM
24		20A 1 Pole THQB
24		ST 120 VAC (Default)
24		20A 1 Pole THQB Space
1		Tin Plated Copper Bus 1000PSI
1		Metal Directory Card Hldr
1		Screw-On Nameplate
1		Power Distribution Panel
1		Same Box Size
1		Ground main lug TGL20
7		Ground-Cu box bonded TGC2
1		AB76B Box
1		AF76SUM Front
1		AQF3844MBX Interior AXB6
10	1	Transformer 66K <b>TL5L1A</b> 9T83B3872G15 30 kVA 3 Ph Dry Type Transformer Coil Material = Aluminum 60 Hz 115C Rise Type QL-TP1 Primary Voltage: 480 Secondary Voltage: 208Y/120





imagination at work

Name: **EATING RECOVERY CENTER REV**  
 Prop: 6N2-10029-U

Date: 01/8/2014

Item#	Qty	Description
		Electrostatic Shield: No ACCESSORIES: 9T18Y7240 Lug Kit
11	1	Transformer 66K <b>TSBL1A</b> 9T83B3873G15 45 kVA 3 Ph Dry Type Transformer Coil Material = Aluminum 60 Hz 115C Rise Type QL-TP1 Primary Voltage: 480 Secondary Voltage: 208Y/120 Electrostatic Shield: No ACCESSORIES: 9T18Y7240 Lug Kit
12	1	Transformer 66K <b>TSBL2A</b> 9T83B3873G15 45 kVA 3 Ph Dry Type Transformer Coil Material = Aluminum 60 Hz 115C Rise Type QL-TP1 Primary Voltage: 480 Secondary Voltage: 208Y/120 Electrostatic Shield: No ACCESSORIES: 9T18Y7240 Lug Kit
13	1	Safety Switch 131 <b>ELEV-2</b> TH3363 For use with size 10-1/0 Copper or size 10-1/0 Aluminum wire Heavy Duty 100 Amp Fusible 3 Pole 3 Wire 600VAC/250VDC NEMA 1 (Indoor) ACCESSORIES PER SWITCH: 1 THAUX64D Auxiliary Contact Kit - DPDT 1 TRK46A Class R Fuse Kit 1 TNG3 Equipment Ground Kit, (3) #12-1/0 AWG CU/AL 1 TNIA63 Neutral Kit 3 TRS100R 100 Amp - RK5 - Time Delay
14	2	Safety Switch 131 <b>RTU DISCONN</b> TH3364R For use with size 2-250 Copper or size 2-250 Aluminum wire Heavy Duty 200 Amp Fusible 3 pole 3 wire 600VAC/250VDC NEMA 3R (Outdoor) ACCESSORIES PER SWITCH: 1 TRK46A Class R Fuse Kit 1 TNG3 Equipment Ground Kit, (3) #12-1/0 AWG CU/AL



imagination at work

Name: **EATING RECOVERY CENTER REV**  
Prop: **6N2-10029-U**

Date: **01/8/2014**

---

Item#	Qty	Description
-------	-----	-------------

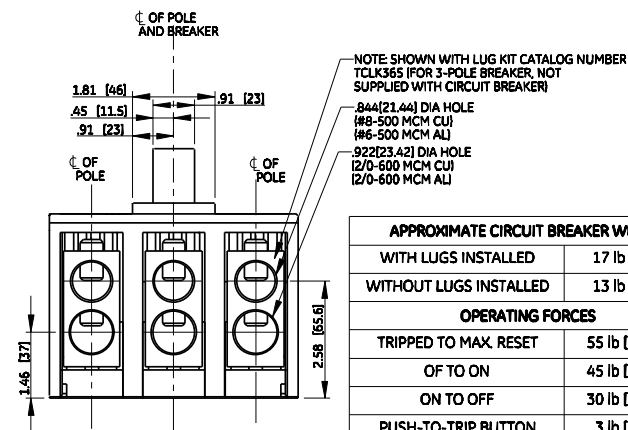
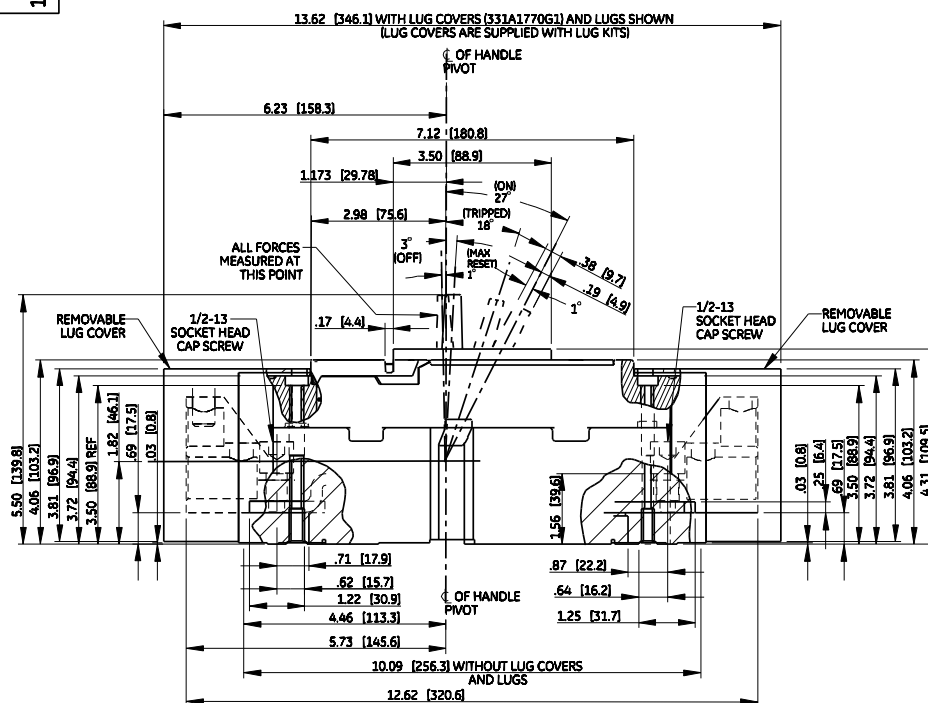
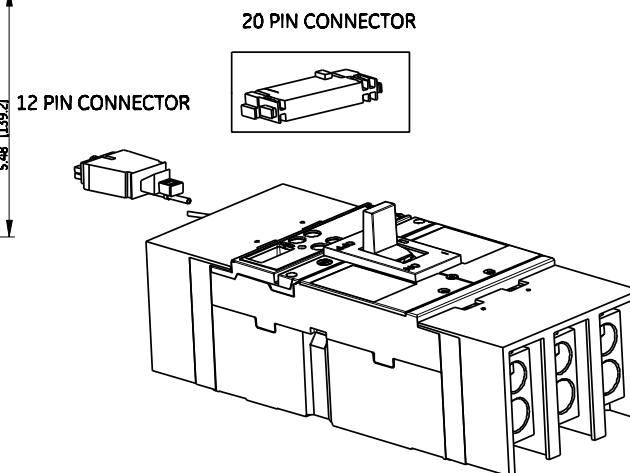
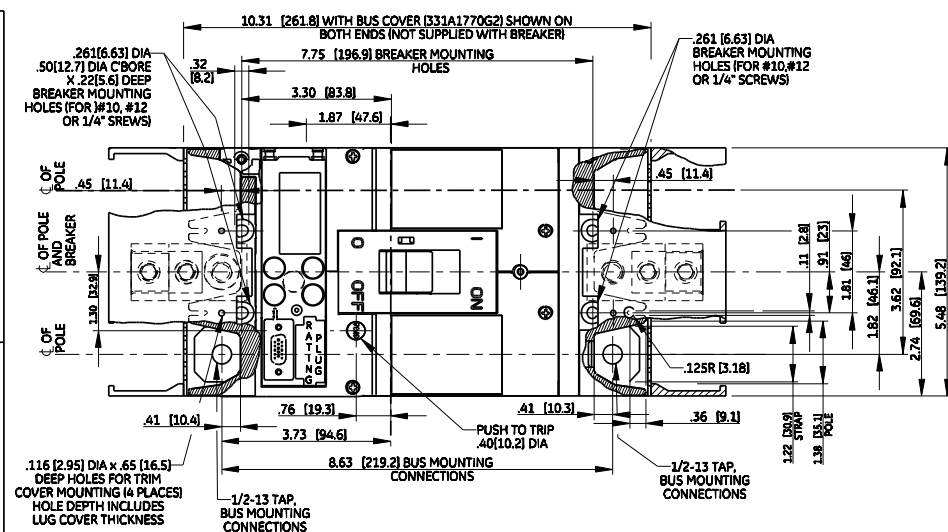
---

- 1 TNIA64 Neutral Kit
- 3 A6D125R 125 Amp - RK1 - Time Delay

- 15 1 Safety Switch 131  
**100A ATS-LS**  
TH3363  
For use with size 10-1/0 Copper or size 10-1/0 Aluminum wire  
Heavy Duty 100 Amp Fusible 3 Pole 3 Wire  
600VAC/250VDC NEMA 1 (Indoor)  
ACCESSORIES PER SWITCH:
  - 1 TRK46A Class R Fuse Kit
  - 1 TNG3 Equipment Ground Kit, (3) #12-1/0 AWG CU/AL
  - 1 TNIA63 Neutral Kit
  - 3 TRS100R 100 Amp - RK5 - Time Delay

**Total Lot Price \$\_\_\_\_\_ Price to follow**

# SWITCHBOARDS



APPROXIMATE CIRCUIT BREAKER WEIGHT	
WITH LUGS INSTALLED	17 lb [7.7 kg]
WITHOUT LUGS INSTALLED	13 lb [5.9 kg]
OPERATING FORCES	
TRIPPED TO MAX. RESET	55 lb [244.6 N]
OF TO ON	45 lb [200.2 N]
ON TO OFF	30 lb [133.4 N]
PUSH-TO-TRIP BUTTON	3 lb [13.3 N]

 **imagination at work**

**SPECTRA RMS G-FRAME CIRCUIT BREAKER  
WITH MICROENTELLIGUARD TRIP UNIT  
FIRST MADE FOR SGH.SGL.SGP**

DWG NO.	
---------	--

208C1547SH1

DATE
------

12/04/09

	REV
--	-----

01

DUAL DIMENSIONS - INCHES (MILLIMETERS)

## GEH-700 Installation Instructions

# Spectra® RMS SG Frame Molded-Case Circuit Breaker

With *microEntelliGuard*™ Trip Units

### Introduction

Spectra® RMS molded-case circuit breakers with *microEntelliGuard*™ trip units provide adjustable overload and short-circuit protection for electrical equipment. Frame types SGHC, SGLC, SGPC, SGHH, SGLL, and SGPP are available with a selection of rating plugs to a maximum of 600 amperes, depending on the sensor rating.

SG Frame circuit breakers are listed per Underwriters Laboratories standard UL489 and Canadian Standards Association standard CSA22.2 No.5 and meet the requirements of the International Electrotechnical Commission standard IEC947-2.

---

**WARNING:** Danger of electrical shock or injury. Turn OFF the power ahead of equipment before installing this device or removing any other device.

---

---

**IMPORTANT:** Danger d'électrocution. Couper l'alimentation avant d'installer cet appareil ou avant de retirer un autre appareil.

---

---

**CAUTION:** This product is NOT suitable for use in equipment not specifically designed to accept it. Contact the equipment manufacturer for possible equipment modifications.

---

---

**IMPORTANT:** Cet appareil ne doit pas être employé dans un équipement qui n'est pas spécialement adapté à cet effet. Contactez le fabricant concernant les possibles modifications à apporter à l'équipement.

---



SG 600 amp Frame breaker with *microEntelliGuard*™ Trip Unit

### Assembly

1. Unpack the circuit breaker and inspect it for any shipping damage. Ensure that the breaker has the proper ampere range, sensor rating, voltage rating, and interruption rating for the application. Since this breaker is available in a wide variety of configurations, compare the catalog number of your purchased breaker with the catalog number key in Table 1. Installation of an incorrect breaker could result in misapplication, lack of system coordination, or reduction in system functionality.

SG PC 36 04 L4 R 6	Code	Description	Function
	SG	SG600	Frame Designation
	HC	35kA at 480Vac	Standard UL Rating
	LC	65kA at 480Vac	
	PC	100kA at 480 Vac	
	HH	35kA at 480Vac	
	LL	65kA at 480Vac	100% Continuous UL Rating
	PP	100kA at 480 Vac	
	3, 6	3 Poles, 600Vac	Poles, Max UL Voltage
	01	150 Amps	Max Amps
	04	400 Amps	
	06	600 Amps	
	L3	LSI	Standard Protection Functions
	L4	LSIG	
	L5	LSIA	
	L7	LSI-CP	
		L = Long Time S = Short Time I = Instantaneous G = Ground Fault A = Ground Fault Alarm CP = Control Power	
	X	None	Advanced Protection Functions
	K	Neutral Protection	
	Z	ZSI (ST/GF)	
	T	ZSI (ST/GF/INST)	
	R	RELT	
	L	ZSI (ST/GF) + RELT	
	M	ZSI (ST/GF) + Neutral Protection	
	N	ZSI (ST/GF) + RELT + Neutral Protection	
	V	RELT + Neutral Protection	
	P	ZSI (ST/GF/INST) + RELT	
	S	ZSI (ST/GF/INST) + Neutral Protection	
	W	ZSI (ST/GF/INST) + RELT + Neutral Protection	
	X	Metering (Basic)	Advanced Features & Communications
	2	Metering (Basic) + Modbus	
	6	Metering (Adv) + Modbus + Waveform Capture	
	8	Metering (Adv) + Modbus + Waveform Capture + Protective Relays	

Table 1. Catalog numbering system for Spectra RMS™ SG Frame breakers with *microEntelliGuard™* trip units

Example – a breaker with catalog number SGPC3604L4R6 has the following features:

- 1 SG600 frame (SG)
  - 2 100 kA at 480 Vac Standard UL rating (PC)
  - 3 3 pole, 600 Vac maximum (36)
  - 4 400 A sensors (04)
  - 5 Long-time, Short-time, Instantaneous and Ground Fault functions (L4)
  - 6 RELT – Reduced Energy Let-Through (R)
  - 7 Advance Metering, Modbus Communications, and Waveform Capture (6)
2. Following the instructions supplied with the rating plug, install the plug into the breaker body. Available rating plugs, with their catalog numbers, are listed in Table 2.

Table 2. SG Frame Rating Plugs

Catalog Numbers	Trip Amps	SG (Max Amps)		
		150	400	600
GTP0060U0101	60	x		
GTP0080U0101	80	x		
GTP0100U0103	100	x		
GTP0125U0103	125	x		
GTP0150U0104	150	x	x	
GTP0200U0204	200		x	
GTP0225U0306	225		x	x
GTP0250U0407	250		x	x
GTP0300U0408	300		x	x
GTP0350U0408	350		x	x
GTP0400U0410	400		x	x
GTP0450U0612	450			x
GTP0500U0613	500			x
GTP0600U0616	600			x

3. Install any internal accessories, following the instructions supplied with each accessory. Available accessories and their mounting locations are listed in Table 3. Check all accessories for proper installation and wire routing. Verify breaker operation with the installed accessories. Accessory leads can be routed along the side of the breaker and across the back. An auxiliary switch is required for the breaker status signal.

**Table 3. Internal Accessories**

Internal Accessory	Maximum Number of Accessories	Accessory Installation Location
Auxiliary Switch (SPDT or DPDT)	1	Right
Bell Alarm Switch	1	Left
Shunt Trip or Undervoltage Release	1	Left

4. Attach the terminal lugs, listed in Table 4, following the instructions supplied with the lug kit. Use one kit for either line or load end; two kits are required for both.

**Table 4. Available Lug Kits**

Catalog Number	Description	Wire Type	Lug Material
TCLK265	2 Pole Lug Kit	Cu/Al	Tin-plated Aluminum
TCLK365	3 Pole Lug Kit		
TCOK265	2 Pole Lug Kit	Cu only	Tin-plated Copper
TCOK365	3 Pole Lug Kit		

5. Ensure that all terminals are torqued to the proper value, as listed in the lug kit instruction sheet. Install the terminal covers, ensuring that they are firmly seated.

---

**NOTE:** Aluminum wire must be used with a joint compound recommended by the wire manufacturer.

---



---

**IMPORTANT:** Si un cable en aluminum est employé, utilisez le lubrifiant recommandé par le fabricant.

---



---

**WARNING:** It is important that the terminal covers are installed correctly to ensure proper circuit breaker operation.

---



---

**IMPORTANT:** Il est important de vérifier que tous couvercles ou caches de protection sont correctement installés afin d'assurer le bon fonctionnement de l'appareil.

---

6. Finally, connect all associated components that are required for the breaker to function properly, using the instructions supplied with each component. The following is a list of available associated components:
  - Terminal board connector
  - Neutral current sensor connector
  - Control power connector
  - Extension cable
  - Control power module (control power transformer may be required)
  - Voltage conditioners (potential transformers may be required)
  - Voltage module
  - Neutral current sensor

### Mounting

All Spectra® RMS circuit breakers are suitable for reverse feed and have no line or load markings. Incoming power cables or busbars may be connected to either the upper or lower terminals as required by the application.

---

**WARNING:** Danger of electrical shock or injury. Turn OFF the power ahead of equipment before installing this device or removing any other device.

---



---

**IMPORTANT:** Danger de choc électrique ou de blessure. Couper l'alimentation entrant dans l'appareil avant de monter celui-ci ou de démonter d'autres appareils.

---

For individual front panel mounting:

1. Drill and tap all mounting holes and make any necessary front-panel escutcheon cutouts, as shown in Figure 1.

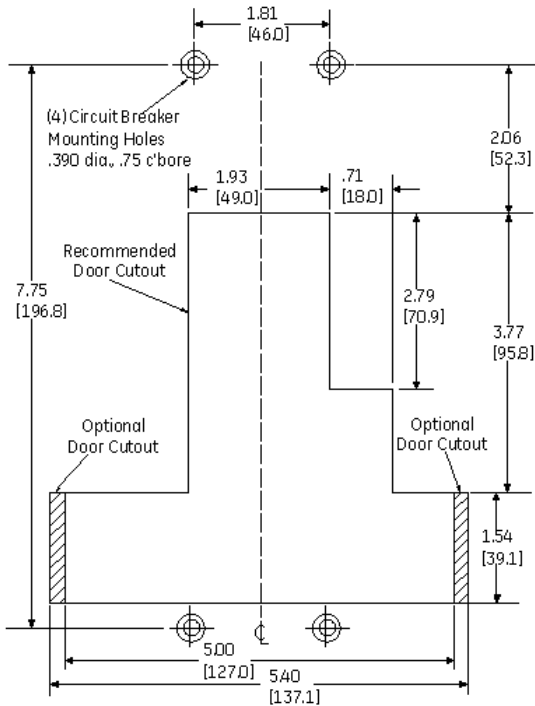


Figure 1. Mounting Hole and Escutcheon Cutout Pattern in/(mm)

2. Mount the breaker with the hardware described in Table 5, following the instructions supplied with the kit.

Table 5. Breaker Mounting Screw Kits

Catalog Number	Application	Kit Description
SFGMSK1	Mounting plate with tapped holes	Four #12-24x3-3/4 screws and lock washers
SFGMSK2	Mounting plate with clearance holes	Four #12-24x4-1/4 screws, nuts, and lock washers

**For GE switchboard and panelboard mounting:**

Install the breaker into the equipment according to the instructions supplied with the equipment. Available mounting hardware kits are listed in Table 6.

Table 6. Equipment Mounting Hardware Kits

Equipment	Double Branch	Single Branch
Panelboard-Spectra Series	AMC6GBFP	AMC3GMFP
Switchboard – Spectra Series class 1 and 2	AMC6GBFP	AMC3GMFP
Switchboard – AV1, AV2	N/A	N/A
Switchboard – AV3, AV5	N/A	ContactFactory

**For individual mounting in a GE enclosure:**

Install the breaker according to the instructions supplied with the enclosure. Available enclosures are listed in Table 7 (refer to the BuyLog for other accessories and/or any enclosure limitations).

Table 7. Enclosures

Enclosure Type	400A Catalog No.	600A Catalog No.
NEMA 1 (indoor)	SG400F SG400S	SG600F SG600S
NEMA 3R (outdoor)	SG400R	SG600R
NEMA 12 (oil-tight and dust-tight)	SG400J	SG600J

**Setup and Adjustment**

The Spectra RMS *micro*EntelliGuard™ trip units are digital, rms sensing, electronic trip units with an LCD and keypad for viewing and/or changing the various function settings. Refer to User's Manual GEH-702 for detailed information concerning the operation, adjustment, and setting of the breaker trip unit.

You should record the overcurrent protection and protective relay set points for future reference.

**NOTE:** Trip units as received may have settings that are undesirable for the specific application. Ensure that settings are appropriately adjusted before energizing the breaker.

**Operation**

The circuit breaker status is indicated by ON/OFF markings, universal I/O symbols, and an indicator window that shows red for ON, yellow for TRIP, and green for OFF. The corresponding handle positions are illustrated in Figure 2. To close the breaker from the OFF position, move the handle to the ON position. To close the breaker from the TRIP position, first move the handle to the OFF (reset) position, and then back to the ON position.

A Push-To-Trip button is provided for convenience in testing the mechanical operation of the breaker.



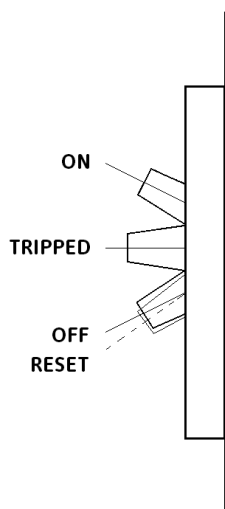


Figure 2. Handle Positions for ON, Tripped, OFF, and RESET

### External Accessories

The following external accessories are available for Spectra RMS SK Frame breakers. Catalog numbers and other ordering information for these external accessories may be obtained from your authorized GE distributor.

- Mounting kits
- Plug-in base, bolt-on base
- Back-connected studs
- Padlocking devices
- External Handle operator
- Motor operators
- Mechanical interlock

### Maintenance

It is recommended that the following operations be performed annually:

---

**WARNING:** Danger of electrical shock or injury. Turn off power ahead of equipment before attempting to service.

---



---

**IMPORTANT:** Danger d'électrocution. Couper l'alimentation avant d'affectuer toute action d'entretien.

---

1. Turn off the power to the equipment being serviced.
2. Clean the surfaces of the breaker and surrounding area of any dirt, soot, or other debris.
3. Inspect the breaker for any signs of damage.
4. Operate the push-to-trip button and toggle handle several times to exercise the mechanism and test the mechanical operation of the breaker.
5. Check all overcurrent protection and protective relay settings for correct values as established for the system.
6. If any sign of damage is found, or the mechanism has a sluggish or sticky operation, or the trip unit display designates an error status, replace the circuit breaker.

The circuit breaker is sealed and contains no user-serviceable parts. Opening the breaker will void any and all warranties.

TVSS

# GE Digital Energy Power Quality

## Introduction

GE Surge Protective Devices (SPD) are engineered for reliability, flexibility and long life in the most extreme surge environment. The true maximum surge current rating, unlimited by fusing, has been proven successful in third-party tests.

These SPD models are available in a standard NEMA 12 enclosure. Optional enclosure types include NEMA 1 and 4X, flushmount, surface mount and stainless steel. Third-party tested per IEEE C62.62 and NEMA LS-1 for the rated  $8 \times 20 \mu\text{s}$  surge current, per mode with fusing included. Standard features include a surge counter, audible alarm, indicating lights, dry contacts and an integral surge rated disconnect.\*\* Rating options range from 65kA to 300kA per mode (130kA to 600kA per phase).

All mode protection is provided with surge components (MOVs) connected on the phase to neutral, phase to ground, and neutral to ground paths as appropriate for the voltage configuration.

\*\* Integral surge rated disconnect is only available for WMN1 and WMN4 suffix catalog numbers

## Features and Benefits

- > UL 1449 3<sup>rd</sup> Edition, Type 2
- > cUL, CSA C22.2
- > UL 96A, for use in lightning protection systems
- > UL 1283, EMI/RFI noise filter
- > Integral surge rated disconnect (optional)
- > Tranquell™ ME device tested to a minimum of 5,000 category C3 impulses (10kA, 20kV) per mode
- > Tranquell™ HE device tested to a minimum of 20,000 category C3 impulses (10kA, 20kV) per mode
- > Device tested to a minimum of 5,000 longwave ( $10 \times 1000 \mu\text{s}$ ) impulses per mode
- > Thermal fuse technology in combination with surge rated fuses
- > Form C dry contacts for remote monitoring
- > Green status indicating lights, red alarm light
- > Audible alarm with test/disable feature
- > Surge counter
- > 5 year limited warranty (standard), 10 year limited warranty (optional)

Wallmount

# Tranquell™ HE & ME


Surge Protective Device (SPD)



Catalog #

WMN

		Nominal Voltage (Volts RMS)	System Voltage Configuration	MCOV Max. Continuous Operating Voltage L-N/G (Vrms)	Maximum Surge Current Capacity								
					Exposure Level	Per Mode	Per Phase	Suffix	Enclosure Description	NEMA	Mounting	Disconnect	
THE	120S	120/240	1 Ph, 3 W + G	150	065	ME	65kA	130kA	1	Painted Steel	1	Surface	Y
TME	120Y	120Y/208	3 Ph, 4 W + G	150	080	ME	80kA	160kA	12S	Painted Steel	12	Surface	N
	220Y	220Y/380	3 Ph, 4 W + G	320	100	ME	100kA	200kA	12F	Painted Steel	12	Flush	N
	240D	240 Delta	3 Ph, 3 W	270	125	HE	125kA	250kA	4	Fiberglass	4X	Surface	Y
	240H	120/240 Delta HL	3 Ph, 4 W + G	150/270 HL	150	HE	150kA	300kA	4S	Painted Steel	4	Surface	N
	240Y	240Y/415	3 Ph, 4 W + G	320	200	HE	200kA	400kA	4X	Stainless Steel	4X	Surface	N
	277Y	277Y/480	3 Ph, 4 W + G	320	250	HE	250kA	500kA					
	347Y	347Y/600	3 Ph, 4 W + G	420	300	HE	300kA	600kA					
	480D	480 Delta	3 Ph, 3 W	550									
	600D	600 Delta	3 Ph, 3 W	625									



### Catalog # example: THE277Y150WMN1

- 277Y/480 V, 3 Ph, 4 W + G
- 150kA per mode, 300kA per phase
- NEMA 1 surface mount

### WMN1-WMN4 Protection Ratings

Voltage Code	120S / 120Y				240D		240H							220Y / 240Y / 277Y				347Y				480D		600D	
Protection Mode	L-N	L-G	N-G	L-L	L-G	L-L	L-N	HL-N	L-G	HL-G	N-G	L-L	HL-L	L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L	L-G	L-L	L-G	L-L
UL 1449, 3 <sup>rd</sup> Edition Voltage Protection Ratings (VPR) (assigned UL rating)	1000	1000	700	1200	1500	1800	1000	1500	1000	1500	700	1200	2500	1500	1500	1000	2000	1800	1500	1500	2500	2000	4000	2000	4000
UL 1449, 2 <sup>nd</sup> Edition Suppression Voltage Ratings (SVR) (assigned UL rating) *	400	400	400	—	800	—	400	700	400	700	400	—	—	800	800	800	—	1000	1000	900	—	1500	—	1500	—

### WMN12F-WMN12S-WMN4S-WMN4X Protection Ratings

Voltage Code	120S / 120Y				240D		240H							220Y / 240Y / 277Y				347Y				480D		600D	
Protection Mode	L-N	L-G	N-G	L-L	L-G	L-L	L-N	HL-N	L-G	HL-G	N-G	L-L	HL-L	L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L	L-G	L-L	L-G	L-L
UL 1449, 3 <sup>rd</sup> Edition Voltage Protection Ratings (VPR) (assigned UL rating)	900	800	700	1200	1200	1800	900	1200	800	1200	700	1200	2100	1500	1200	1200	2000	1500	1500	1500	2500	1800	3000	2000	4000
UL 1449, 2 <sup>nd</sup> Edition Suppression Voltage Ratings (SVR) (assigned UL rating) *	400	400	400	—	800	—	400	700	400	700	400	—	—	800	800	800	—	1000	1000	900	—	1500	—	1500	—

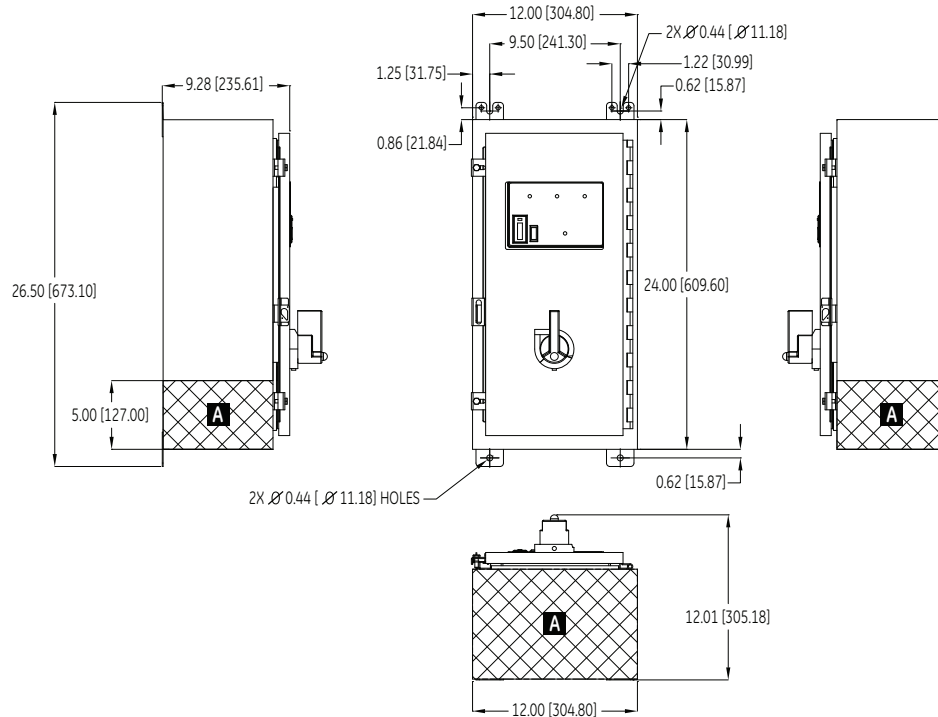
\* NOTE: SVR Ratings are no longer assigned by UL and are included in the table above for reference purposes only.

## Technical Specifications

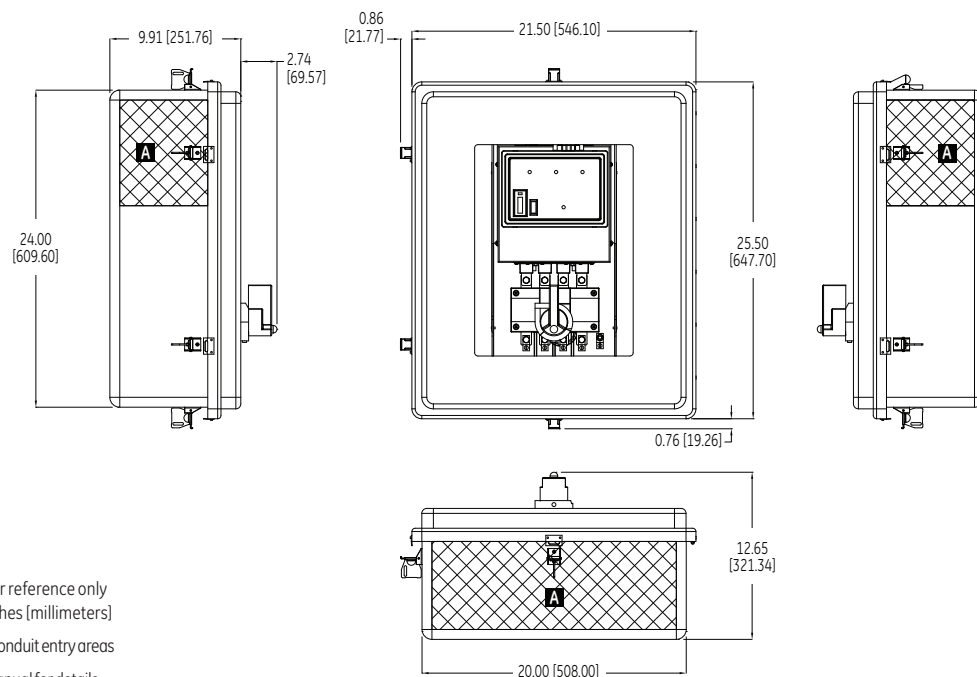
Nominal Discharge Current ( $I_{n1}$ )	20kA
Short Circuit Current Rating (SCCR)	200kA (60A breaker required)
Operating Frequency	50/60 Hz
Connection	6 to 2/0 Conductors, Parallel Connected
Operating Temperature	-40° F to 149° F (-40° C to +65° C)
Operating Humidity	0% to 95% Non-Condensing
Weight	TME 32 lbs. (14.51 kg) THE 50 lbs. (22.68 kg)

## Dimensions

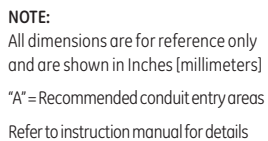
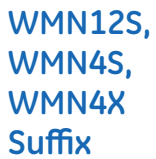
### WMN1D Suffix



### WMN4D Suffix



**NOTE:**  
All dimensions are for reference only  
and are shown in Inches [millimeters]  
"A" = Recommended conduit entry areas  
Refer to instruction manual for details

WMN12F  
Suffix

Information subject to change without notice. Please verify all details with GE.  
DEA-320 (3/10) © 2010 General Electric Company All Rights Reserved

# PANELBOARDS

# Spectra Panelboard

## Item 3 PANEL EMDP

### Panel Description

GE Type ADS Panelboard  
Qty 1  
600 Amp,480Y/277V  
3P4W  
18 KAIC SC Fully Rated  
Copper Bus  
Nema 1 Enclosure  
Surface Mounted  
Bottom Feed

### Main Description

Amps: 600 Amp  
Type: Main Lugs  
Lugs: 1-lug/ph 2-cable/lug  
2/0 -500 mcm

### Options Included

1 - Copper Bus Heat Rated  
1 - Front Hinged To Box  
1 - Nameplates  
1 - CU Grnd bonded AEGCU47  
1 - Grnd-Box bonded AEG10

### Branch Devices

<u>Qty</u>	<u>Amps/P</u>	<u>Cat#</u>
1	100A 3P	ADS36100HS
1	100A/3P	TED134100
1	400A/3P	SGHA36AT0400+
1	Rating Plg	SRPG400A400
1	Lug Kit	1TCLK365

### Panel Interior

7 X FILLER					
Ckt	Type	Amps/P	Type	Amps/P	Ckt
1	<b>TED4</b>	100/3	<b>Spaces</b>	-	
	-	-	-	-	
	-	-	-	-	
7	<b>SGHA4</b>	400/3	-	-	
	-	-	-	-	
	-	-	-	-	
	-	-	-	-	
15	<b>ADS</b>	100/3	-	-	
	-	-	-	-	
	-	-	-	-	
	-	-	-	-	
	-	-	-	-	
600A 3P					
LUGS					

\* Drawing not to scale

<b>Job Name:</b>	EATING RECOVERY CENTER REV		
<b>Prop No:</b>	6N2-10029-U	<b>GE Req#:</b>	
<b>PO#:</b>			
<b>Marks:</b>	PANEL EMDP	<b>Dated:</b>	01/08/2014

<b>3A Interior</b>	APN2306FH2A
<b>3B Box</b>	APB3665D
<b>3C Front</b>	APF6523DH
<b>Dimensions</b>	64.63"H x 36"W x 16.25"D



# A Series Panelboard

## Item 4 PANEL LSH1A

### Panel Description

GE Type AE Panelboard  
Qty 1  
125 Amp,480Y/277V  
3P4W  
10 KAIC SC Fully Rated  
Copper Bus  
Nema 1 Enclosure  
Surface Mounted  
Bottom Feed

### Main Description

Amps: 125 Amp  
Type: Main Lugs  
Lugs: 1-lug/ph 1-cable/lug  
#14 -2/0

### Options Included

1 - Tin Plated Copper Bus 1000PSI  
1 - Corbin Latch Bolt 15767  
1 - Metal Directory Card Hldr  
1 - Screw-On Nameplate  
3 - Ground-Cu box bonded TGC2

### Branch Devices

<u>Qty</u>	<u>Amps/P</u>	<u>Cat#</u>
18	20A/1P	TEY120
9	20A/1P	Spaces
1	50A/3P	TEY350

### Panel Interior

125A PANEL END FILLER					
Ckt	Type	Amps/P	Type	Amps/P	Ckt
1	TEY	50/3	TEY	20/1	2
	-	-	TEY	20/1	4
	-	-	TEY	20/1	6
7	TEY	20/1	TEY	20/1	8
9	TEY	20/1	TEY	20/1	10
11	TEY	20/1	TEY	20/1	12
13	TEY	20/1	TEY	20/1	14
15	TEY	20/1	TEY	20/1	16
17	TEY	20/1	TEY	20/1	18
19	TEY	20/1	TEY	20/1	20
21	TEY	20/1	SPACE	20/1	22
23	SPACE	20/1	SPACE	20/1	24
25	SPACE	20/1	SPACE	20/1	26
27	SPACE	20/1	SPACE	20/1	28
29	SPACE	20/1	SPACE	20/1	30
125A MAIN LUGS WITH NEUTRAL					

\* Drawing not to scale

<b>Job Name:</b>	EATING RECOVERY CENTER REV		
<b>Prop No:</b>	6N2-10029-U	<b>GE Req#:</b>	
<b>PO#:</b>			
<b>Marks:</b>	PANEL LSH1A	<b>Dated:</b>	01/08/2014

<b>4A Interior</b>	AEF3301MBX AXB6
<b>4B Box</b>	AB31B
<b>4C Front</b>	AF31SLUM
<b>Dimensions</b>	31.5"H x 20"W x 5.75"D

# A Series Panelboard

## Item 5 PANEL SBH1A

### Panel Description

GE Type AE Panelboard  
Qty 1  
400 Amp, 480Y/277V  
3P4W  
18 KAIC SC Fully Rated  
Copper Bus  
Nema 1 Enclosure  
Surface Mounted  
Bottom Feed

### Main Description

Amps: 400 Amp  
Type: Main Lugs  
Lugs: 1-lug/ph 2-cable/lug  
#4 -600 mcm  
or  
1-lug/ph 4-cable/lug  
1/0 -250 mcm

### Options Included

1 - Sub-feed (DUAL) Main Lugs  
1 - Tin Plated Copper Bus 1000PSI  
1 - Corbin Latch Bolt 15767  
1 - Metal Directory Card Hldr  
1 - Screw-On Nameplate  
1 - Same Box Size  
  
1 - Ground main lug TGL20  
3 - Ground-Cu box bonded TGC2

### Branch Devices

Qty	Amps/P	Cat#
21	20A/1P	Spaces
2	20A/3P	TEYF320
2	70A/3P	TEYF370
1	100A/3P	TEYF3100
2	125A/3P	TED134125

### Panel Interior

400A NEUTRAL ONLY					
Ckt	Type	Amps/P	Type	Amps/P	Ckt
1	TEYF	100/3	TEYF	70/3	2
	-	-	-	-	
	-	-	-	-	
7	TEYF	70/3	TEYF	20/3	8
	-	-	-	-	
	-	-	-	-	
13	TEYF	20/3	SPACE	20/1	14
	-	-	SPACE	20/1	16
	-	-	SPACE	20/1	18
19	SPACE	20/1	SPACE	20/1	20
21	SPACE	20/1	SPACE	20/1	22
23	SPACE	20/1	SPACE	20/1	24
25	SPACE	20/1	SPACE	20/1	26
27	SPACE	20/1	SPACE	20/1	28
29	SPACE	20/1	SPACE	20/1	30
31	SPACE	20/1	SPACE	20/1	32
33	SPACE	20/1	SPACE	20/1	34
35	SPACE	20/1	SPACE	20/1	36
	TED4	125/3	CENTER MOUNTED		
	SUBFEED				
	TED4	125/3	CENTER MOUNTED		
	SUBFEED				
400A SUBFEED LUGS (DUAL)					

\* Drawing not to scale

Job Name:	EATING RECOVERY CENTER REV		
Prop No:	6N2-10029-U	GE Req#:	
PO#:			
Marks:	PANEL SBH1A	Dated:	01/08/2014

5A Interior	AEF3364SBX AXE6B6
5B Box	AB64B
5C Front	AF64SLUM
Dimensions	64.5"H x 20"W x 5.75"D

# A Series Panelboard

## Item 6 PANEL LSL1A

### Panel Description

GE Type AQ Panelboard  
Qty 1  
125 Amp,208Y/120V  
3P4W  
10 KAIC SC Fully Rated  
Copper Bus  
Nema 1 Enclosure  
Surface Mounted  
Bottom Feed

### Main Description

Amps: 100 Amp  
Poles: 3 Pole  
Type: Main Breaker  
Cat No.: THQB32100  
Acc:  
Lugs: 1-lug/ph 1-cable/lug  
#14 -1/0

### Options Included

1 - Tin Plated Copper Bus 1000PSI  
1 - Metal Directory Card Hldr  
1 - Screw-On Nameplate  
3 - Ground-Cu box bonded TGC2

### Branch Devices

<u>Qty</u>	<u>Amps/P</u>	<u>Cat#</u>
17	20A/1P	THQB1120
7	20A/1P	Spaces
4	25A/1P	THQB1125
1	30A/2P	THQB2130

### Panel Interior

125A PANEL END FILLER					
Ckt	Type	Amps/P	Type	Amps/P	Ckt
1	THQB	30/2	THQB	25/1	2
	-	-	THQB	25/1	4
5	THQB	25/1	THQB	25/1	6
7	THQB	20/1	THQB	20/1	8
9	THQB	20/1	THQB	20/1	10
11	THQB	20/1	THQB	20/1	12
13	THQB	20/1	THQB	20/1	14
15	THQB	20/1	THQB	20/1	16
17	THQB	20/1	THQB	20/1	18
19	THQB	20/1	THQB	20/1	20
21	THQB	20/1	THQB	20/1	22
23	THQB	20/1	SPACE	20/1	24
25	SPACE	20/1	SPACE	20/1	26
27	SPACE	20/1	SPACE	20/1	28
29	SPACE	20/1	SPACE	20/1	30
	100A 3P THQB	-	-	-	
3	-		FILLER	-	
125A NEUTRAL ONLY					

\* Drawing not to scale

Job Name:	EATING RECOVERY CENTER REV		
Prop No:	6N2-10029-U	GE Req#:	
PO#:			
Marks:	PANEL LSL1A	Dated:	01/08/2014

6A Interior	AQF3301ABX AXB6
6B Box	AB31B
6C Front	AF31SUM
Dimensions	31.5"H x 20"W x 5.75"D

# A Series Panelboard

## Item 7 PANEL SBL1A

### Panel Description

GE Type AQ Panelboard  
Qty 1  
225 Amp, 208Y/120V  
3P4W  
10 KAIC SC Fully Rated  
Copper Bus  
Nema 1 Enclosure  
Surface Mounted  
Bottom Feed

### Main Description

Amps: 225 Amp  
Type: Main Lugs  
Lugs: 1-lug/ph 1-cable/lug  
#6 -350 mcm

### Options Included

1 - Tin Plated Copper Bus 1000PSI  
1 - Metal Directory Card Hldr  
1 - Screw-On Nameplate  
1 - Ground main lug TGL20  
4 - Ground-Cu box bonded TGC2

### Branch Devices

Qty	Amps/P	Cat#
1	15A/1P	THQB1115
23	20A/1P	THQB1120
3	20A/1P	THQB1120ST1
3	ST 120 VAC (Default)	
3	20A/3P	THQB32020
1	30A/3P	THQB32030

### Panel Interior

225A PANEL END FILLER					
Ckt	Type	Amps/P	Type	Amps/P	Ckt
1	THQB	30/3	THQB	20/3	2
	-	-	-	-	
	-	-	-	-	
7	THQB	20/3	THQB	20/3	8
	-	-	-	-	
	-	-	-	-	
13	THQB	20/1	THQB	20/1	14
15	THQB	20/1	THQB	20/1	16
17	THQB	20/1	THQB	20/1	18
19	THQB	20/1	THQB	20/1	20
21	THQB	20/1	THQB	20/1	22
23	THQB	20/1	THQB	20/1	24
25	THQB	20/1	THQB	20/1	26
27	THQB	20/1	THQB	20/1	28
29	THQB	20/1	THQB	20/1	30
31	THQB	20/1	THQB	20/1	32
33	THQB	20/1	THQB	20/1	34
35	THQB	20/1	THQB	20/1	36
37	THQB	20/1	SHUNT TRIP	-	
	SHUNT TRIP	-	THQB	20/1	40
41	THQB	15/1	SHUNT TRIP	-	
225A MAIN LUGS WITH NEUTRAL					

\* Drawing not to scale

Job Name:	EATING RECOVERY CENTER REV		
Prop No:	6N2-10029-U	GE Req#:	
PO#:			
Marks:	PANEL SBL1A	Dated:	01/08/2014

7A Interior	AQF3422MBX AXB6
7B Box	AB43B
7C Front	AF43SUM
Dimensions	43.5"H x 20"W x 5.75"D

# A Series Panelboard

## Item 8 PANEL SBL2A

### Panel Description

GE Type AQ Panelboard  
Qty 1  
225 Amp, 208Y/120V  
3P4W  
10 KAIC SC Fully Rated  
Copper Bus  
Nema 1 Enclosure  
Surface Mounted  
Bottom Feed

### Branch Devices

Qty	Amps/P	Cat#
1	15A/1P	THQB1115
52	20A/1P	THQB1120
20	20A/1P	Spaces
2	15A/2P	THQB2115
1	40A/2P	THQB2140
1	45A/2P	THQB2145
1	20A/3P	THQB32020

### Panel Interior

225A PANEL END FILLER					
Ckt	Type	Amps/P	Type	Amps/P	Ckt
1	THQB	20/3	THQB	45/2	2
	-	-	-	-	
	-	-	THQB	40/2	6
7	THQB	15/2	-	-	
	-	-	THQB	15/2	10
11	THQB	20/1	-	-	
13	THQB	20/1	THQB	20/1	14
15	THQB	20/1	THQB	20/1	16
17	THQB	20/1	THQB	20/1	18
19	THQB	20/1	THQB	20/1	20
21	THQB	20/1	THQB	20/1	22
23	THQB	20/1	THQB	20/1	24
25	THQB	20/1	THQB	20/1	26
27	THQB	20/1	THQB	20/1	28
29	THQB	20/1	THQB	20/1	30
31	THQB	20/1	THQB	20/1	32
33	THQB	20/1	THQB	20/1	34
35	THQB	20/1	THQB	20/1	36
37	THQB	20/1	THQB	20/1	38
39	THQB	20/1	THQB	20/1	40
41	THQB	20/1	THQB	20/1	42
43	THQB	20/1	THQB	20/1	44
45	THQB	20/1	THQB	20/1	46
47	THQB	20/1	THQB	20/1	48
49	THQB	20/1	THQB	20/1	50
51	THQB	20/1	THQB	20/1	52
53	THQB	20/1	THQB	20/1	54
55	THQB	20/1	THQB	20/1	56
57	THQB	20/1	THQB	20/1	58
59	THQB	20/1	THQB	20/1	60
61	THQB	20/1	THQB	20/1	62
63	THQB	20/1	THQB	15/1	64
65	SPACE	20/1	SPACE	20/1	66
67	SPACE	20/1	SPACE	20/1	68
69	SPACE	20/1	SPACE	20/1	70

### Main Description

Amps: 225 Amp  
Type: Main Lugs  
Lugs: 1-lug/ph 1-cable/lug  
#6 -350 mcm

### Options Included

1 - Tin Plated Copper Bus 1000PSI  
1 - Metal Directory Card Hldr  
1 - Screw-On Nameplate  
1 - Power Distribution Panel  
1 - Ground main lug TGL20  
7 - Ground-Cu box bonded TGC2

Job Name:	EATING RECOVERY CENTER REV		
Prop No:	6N2-10029-U	GE Req#:	
PO#:			
Marks:	PANEL SBL2A	Dated:	01/08/2014

8A Interior	AQF3842MBX AXB6
8B Box	AB76B
8C Front	AF76SUM
Dimensions	76.5"H x 20"W x 5.75"D

### Panel Interior Continued

65	SPACE	20/1	SPACE	20/1	66
67	SPACE	20/1	SPACE	20/1	68
69	SPACE	20/1	SPACE	20/1	70
71	SPACE	20/1	SPACE	20/1	72
73	SPACE	20/1	SPACE	20/1	74
75	SPACE	20/1	SPACE	20/1	76
77	SPACE	20/1	SPACE	20/1	78
225A MAIN LUGS WITH NEUTRAL					

\* Drawing not to scale

<b>Job Name:</b>	EATING RECOVERY CENTER REV		
<b>Prop No:</b>	6N2-10029-U	<b>GE Req#:</b>	
<b>PO#:</b>			
<b>Marks:</b>	PANEL SBL2A	<b>Dated:</b>	01/08/2014

<b>8A Interior</b>	AQF3842MBX AXB6
<b>8B Box</b>	AB76B
<b>8C Front</b>	AF76SUM
<b>Dimensions</b>	76.5"H x 20"W x 5.75"D

# A Series Panelboard

## Item 9 PANEL KL1A

### Panel Description

GE Type AQ Panelboard  
Qty 1  
400 Amp, 208Y/120V  
3P4W, Section 1 of 2  
10 KAIC SC Fully Rated  
Copper Bus  
Nema 1 Enclosure  
Surface Mounted  
Bottom Feed

### Branch Devices

Qty	Amps/P	Cat#
1	70A/3P	THQB32070
2	15A/3P	THQB32015
1	100A/2P	THQB21100
1	35A/2P	THQB2135
1	25A/2P	THQB2125
17	20A/1P	THQB1120ST1
17	ST 120 VAC (Default)	
1	150A/3P	TQD32150

### Panel Interior

400A NEUTRAL ONLY					
Ckt	Type	Amps/P	Type	Amps/P	Ckt
1	THQB	70/3	THQB	15/3	2
	-	-	-	-	
	-	-	-	-	
7	THQB	15/3	THQB	100/2	8
	-	-	-	-	
	-	-	THQB	35/2	12
13	THQB	25/2	-	-	
	-	-	THQB	20/1	16
17	THQB	20/1	SHUNT TRIP	-	
	SHUNT TRIP	-	THQB	20/1	20
21	THQB	20/1	SHUNT TRIP	-	
	SHUNT TRIP	-	THQB	20/1	24
25	THQB	20/1	SHUNT TRIP	-	
	SHUNT TRIP	-	THQB	20/1	28
29	THQB	20/1	SHUNT TRIP	-	
	SHUNT TRIP	-	THQB	20/1	32
33	THQB	20/1	SHUNT TRIP	-	
	SHUNT TRIP	-	THQB	20/1	36
37	THQB	20/1	SHUNT TRIP	-	
	SHUNT TRIP	-	THQB	20/1	40
41	THQB	20/1	SHUNT TRIP	-	
	SHUNT TRIP	-	THQB	20/1	44
45	THQB	20/1	SHUNT TRIP	-	
	SHUNT TRIP	-	THQB	20/1	48
	Spaces	-	SHUNT TRIP	-	
	Spaces	-	Spaces	-	
	Spaces	-	Spaces	-	
	TQD	150/3	CENTER MOUNTED		
	SUBFEED				
400A SUBFEED LUGS (DUAL)					

\* Drawing not to scale

### Main Description

Amps: 400 Amp  
Type: Main Lugs  
Lugs: 1-lug/ph 2-cable/lug  
#4 -600 mcm  
or  
1-lug/ph 4-cable/lug  
1/0 -250 mcm

### Options Included

1 - Sub-feed (DUAL) Main Lugs  
1 - Tin Plated Copper Bus 1000PSI  
1 - Metal Directory Card Hldr  
1 - Screw-On Nameplate  
1 - Power Distribution Panel  
1 - Same Box Size  
  
1 - Ground main lug TGL20  
4 - Ground-Cu box bonded TGC2

Job Name:	EATING RECOVERY CENTER REV		
Prop No:	6N2-10029-U	GE Req#:	
PO#:			
Marks:	PANEL KL1A	Dated:	01/08/2014

9-1A Interior	AQF3544SBX AXQ3B6
9-1B Box	AB76B
9-1C Front	AF76SUM
Dimensions	76.5"H x 20"W x 5.75"D

# A Series Panelboard

## Item 9 PANEL KL1A

### Panel Description

GE Type AQ Panelboard  
Qty 1  
400 Amp, 208Y/120V  
3P4W, Section 2 of 2  
10 KAIC SC Fully Rated  
Copper Bus  
Nema 1 Enclosure  
Surface Mounted  
Bottom Feed

### Main Description

Amps: 400 Amp  
Type: Main Lugs  
Lugs: 1-lug/ph 1-cable/lug  
#4 -600 mcm  
or  
1-lug/ph 2-cable/lug  
1/0 -250 mcm

### Options Included

1 - Ground main lug TGL20  
4 - Ground-Cu box bonded TGC2  
1 - Tin Plated Copper Bus 1000PSI  
1 - Metal Directory Card Hldr  
1 - Screw-On Nameplate  
1 - Power Distribution Panel  
1 - Same Box Size

### Branch Devices

Qty	Amps/P	Cat#
24	20A/1P	THQB1120ST1
24	ST 120 VAC (Default)	
24	20A/1P	Spaces

### Panel Interior

400A PANEL END FILLER					
Ckt	Type	Amps/P	Type	Amps/P	Ckt
1	THQB	20/1	THQB	20/1	2
	SHUNT TRIP	-	SHUNT TRIP	-	
5	THQB	20/1	THQB	20/1	6
	SHUNT TRIP	-	SHUNT TRIP	-	
9	THQB	20/1	THQB	20/1	10
	SHUNT TRIP	-	SHUNT TRIP	-	
13	THQB	20/1	THQB	20/1	14
	SHUNT TRIP	-	SHUNT TRIP	-	
17	THQB	20/1	THQB	20/1	18
	SHUNT TRIP	-	SHUNT TRIP	-	
21	THQB	20/1	THQB	20/1	22
	SHUNT TRIP	-	SHUNT TRIP	-	
25	THQB	20/1	THQB	20/1	26
	SHUNT TRIP	-	SHUNT TRIP	-	
29	THQB	20/1	THQB	20/1	30
	SHUNT TRIP	-	SHUNT TRIP	-	
33	THQB	20/1	THQB	20/1	34
	SHUNT TRIP	-	SHUNT TRIP	-	
37	THQB	20/1	THQB	20/1	38
	SHUNT TRIP	-	SHUNT TRIP	-	
41	THQB	20/1	THQB	20/1	42
	SHUNT TRIP	-	SHUNT TRIP	-	
45	THQB	20/1	THQB	20/1	46
	SHUNT TRIP	-	SHUNT TRIP	-	
49	SPACE	20/1	SPACE	20/1	50
51	SPACE	20/1	SPACE	20/1	52
53	SPACE	20/1	SPACE	20/1	54
55	SPACE	20/1	SPACE	20/1	56
57	SPACE	20/1	SPACE	20/1	58
59	SPACE	20/1	SPACE	20/1	60
61	SPACE	20/1	SPACE	20/1	62
63	SPACE	20/1	Spaces	-	
65	SPACE	20/1	Spaces	-	
67	SPACE	20/1	Spaces	-	
69	SPACE	20/1	Spaces	-	

<b>Job Name:</b>	EATING RECOVERY CENTER REV		
<b>Prop No:</b>	6N2-10029-U	<b>GE Req#:</b>	
<b>PO#:</b>			
<b>Marks:</b>	PANEL KL1A	<b>Dated:</b>	01/08/2014

<b>9-2A Interior</b>	AQF3844MBX AXB6
<b>9-2B Box</b>	AB76B
<b>9-2C Front</b>	AF76SUM
<b>Dimensions</b>	76.5"H x 20"W x 5.75"D



### Panel Interior Continued

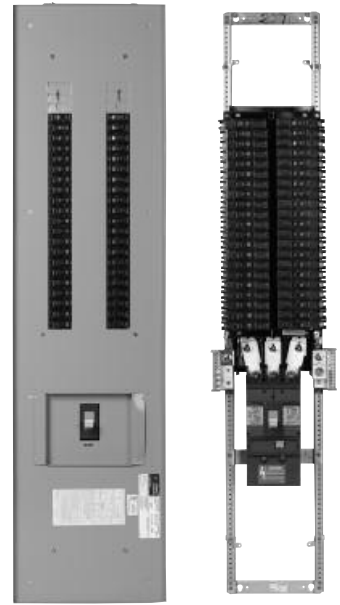
47	SPACE	20/1	Spaces	-	48
49	SPACE	20/1	Spaces	-	50
51	SPACE	20/1	Spaces	-	52
53	SPACE	20/1	Spaces	-	54
55	SPACE	20/1	Spaces	-	56
57	SPACE	20/1	Spaces	-	58
59	Spaces	-	Spaces	-	60

400A MAIN LUGS WITH NEUTRAL

\* Drawing not to scale

<b>Job Name:</b>	EATING RECOVERY CENTER REV		
<b>Prop No:</b>	6N2-10029-U	<b>GE Req#:</b>	
<b>PO#:</b>			
<b>Marks:</b>	PANEL KL1A	<b>Dated:</b>	01/08/2014

<b>9-2A Interior</b>	AQF3844MBX AXB6
<b>9-2B Box</b>	AB76B
<b>9-2C Front</b>	AF76SUM
<b>Dimensions</b>	76.5"H x 20"W x 5.75"D



# Typical AE Panelboard

## Installation

Consult instructions NEMA PB-1.1 located in the circuit directory on the front door before installing this panelboard. If necessary, order replacement manual from supplier.

## Wiring Guidelines (Cu or Al)

- Use 60°C or 75°C ampacity sized wire on line and neutral and equipment ground terminals.
  - Standard wire sizes listed in this publication may be changed by using alternate terminal kits.
  - Refer to circuit breakers for allowable wire temperature rating, wire size and tightening torque.
  - Neutral rated for 200% panelboard phase current option.
    - Use copper wire only at neutral main lugs
      - 125A (1) neutral cables 250 mcm maximum
      - 225A (2) neutral cables 250 mcm maximum
      - 400A (2) neutral cables 600 mcm maximum
      - 600A (4) neutral cables 350 mcm maximum
- Suitable for nonlinear loads, 200% rated neutral, additional "Y" lugs provided for 200% neutral.

## Short Circuit Current Rating

The panelboard's maximum short circuit interrupting rating in rms symmetrical amperes, is equal to the lowest interrupting rating of any device installed, except as noted in the series rating listed in DEH-40007, with integral or remote main circuit breaker or fusible switch installed upstream of the panelboard. Devices to be installed or replacement units shall be from the same manufacturer, of the same type, and have equal or greater interrupting capacity.

Maximum continuous loads on main or branch circuits shall not exceed 80% of the ratings of the listed circuit breakers. Branch breaker straps suitable for 180A maximum.

## Tripped Breaker

If the breaker trips, handle will be in intermediate position.

## Instructions To Restore Power

1. Move handle to OFF position.
2. Then move handle to ON position.

## Seismic Rating

Meets or Exceeds the Requirements According to

- **IEEE-693-2005**  
High Level with 1.8 Amplification Factor
- **IBC-2006**  
Sds = 1.3g, Ss = 200%, Ip = 1.5, for z/h > 0  
Sds = 2.0g, Ss = 300%, Ip = 1.5, for z/h = 0  
In accordance with ICC-ES-AC156

## Polybag Contents

A polybag of goods supplied with every panelboard interior contains:

- Arc flash label
- DEH-40007 Series Ratings, Wiring Diagrams & Circuit Directory
- Series rating sticker
- Front installation instructions
- ANSI PB1 documentation
- Circuit numbering stickers (1-84)
- Front and shield mounting screws



imagination at work

## Torque

### Tightening Torque

Applies to line, neutral and equipment ground terminal

Slotted Screw		
AWG Wire	Lbs-In	
	Min	Max
14-10	32	35
8	36	40
6-4	41	45
3-2/0	45	50

Internal Hex		
Hex Size	Lbs-In	
	Min	Max
3/16	108	120
1/4	180	200
5/16	240	275
3/8	330	375
1/2	450	500

### Torque Values for Hardware

Screw Size	Torque (In-Lbs)
#4 Steel	16
#10 Plastic	16
#8 Cu/Al/Steel	24
#10-32 Cu/Al/Steel	32
1/4-20 Al/<.150 Thick Cu	44
1/4-20 .150 Thick Cu	60
5/16-18 Cu/Al/Steel	110
3/8-16 Cu/Al/Steel	220
1/2-13 Cu/Al/Steel	220

## Lug Kits

### Lug Kits for A-Series II Panelboards

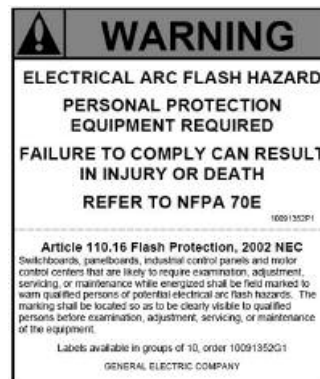
Rating	Pressure Lug Kit		Crimp Lug Kit		Pressure Lug Kit	
	Cat. No.	Wire Range Al/Cu	Cat. No.	Wire Range Al/Cu	Cat. No.	Wire Range Cu Only
125A	MLA1	6-350	MLT1	4-300	MLR1	4-350
225A	MLA2	1/0-250	MLT2	2/0 - 500	MLR2	1/0-600
400A	Standard - MLA41	4-600	MLT41	500-750 (Cu Only)	MLR41	1/0-600
	Oversize - MLA62	3/0 - 800 (Main) & 4-600 (Neutral)	-	-	-	-
600A	Standard -MLA61	4-500	-	-	MLR61	1/0-600

### Crimp Tools

Wire	Crimp Tool
All Al & Up to 500 MCM Cu	Hubbell Anderson VC6
500-750 MCM Cu	Hubbell Anderson VC7
Up to #6-1000 MCM Cu & #5-750 Kcmil Al	Burndy Tool Y644HS

### Neutral Lug Z

Holes	Wire Size - Cu / Al
Large	2 / 0 - 14
Small	No. 4 - 14



Arc fault label included with all interiors to be applied by electrical contractor.

## Interrupting Ratings - Molded Case Circuit Breakers

Molded Case Circuit Breakers						Federal Spec	UL Listed Interrupting Ratings in kA						
Construction	Frame	Trip Range (Amps)	Pole	AC	DC	C/B Class W-C-375B	RMS Symmetrical AC Volts						
							120	120/ 240	240	277	480Y/277	480	600
Standard Frames	TEY	15-100	1	480Y/277	250	13a			65	14			
		15-100	2,3	480Y/277	250	13a			65		14		
	TJD	250-400	2,3	240	250 (1)	14b			22				
Spectra RMS	SEH (2)	15-150	2	480		13b, 15b			65			25	
			3	600		22a			65			25	18
	SEL	15-150	2	480		13b, 15b			100			65	
			3	600		21a, 22a, 23a			100			65	25
	SEP	15-150	2	480		16a			200			100	
			3	600		16a, 23a			200			100	25
	SFH	70-250	2	480		13b			65			35	
			3	600		20a, 22a			65			35	22
	SFL	70-250	2	480		13b			100			65	
			3	600		21a, 23a			100			65	25
	SFP	70-250	2	480		16a			200			65	
			3	600		16a, 23a			200			65	25
	SGH4 (2)	125-400	2,3	600		21a, 23a			65			35	25
	SGH6 (2)	250-600	2,3	600		23a			65			35	25
	SGL4	125-400	2,3	600		23a			100			65	65
	SGP4	125-400	2,3	600		23a			200			100	65
	SGL6	250-600	2,3	600		24a			100			65	65
	SGP6	250-600	2,3	600		25a			200			100	65
	SKH8	300-800	2,3	600		21a, 23a			65			50	25
	SKL8	300-800	2,3	600		24a			100			65	42
	SKP8	300-800	2,3	600		25a			200			100	65

(1) 3 Poles are not DC rated

(2) Not current limiting breaker type

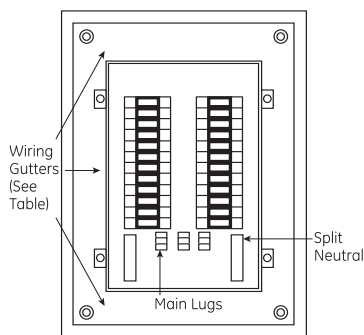
## Circuit Breaker Terminals (Cu-Al)

Frame		Poles	No. per Pole	Cat. No.	Wire Cu-Al (Unless otherwise specified)	
Standard	Current Limiting / High Interrupting				Per Lug	Range
TEY	-	1,2,3	1	Fixed to Breaker Terminal	1	(15-20A) #14-#12 Cu or #12-1 Al, (30-60A) #10-#6 Cu or #8-#4 Al, (70-100A) #4-#1 Cu or #2-1/0 Al
-	SEH, SEL, SEP	2,3	1	TCAL18	1	#12-3/0 Al; #12-3/0 Cu
SFHA	SFLA, SFPA	2,3	1	TCAL129	1	#8-350kcmil
TFJ	-	2,3	1	TCAL24,26	1	#4-300MCM
TJJ	-	2,3	1	TCAL43	1	#6-600MCM or 2(2/0-250MCM)
SGHA	SGL, SGP	2	1	TCLK265	-	2 (2/0-400kcmil, Cu) or 2 (2/0-500kcmil, Al) or #6-600kcmil
		3	1	TCLK365	-	2 (2/0-400kcmil, Cu) or 2 (2/0-500kcmil, Al) or #6-600kcmil
-	FGN4, FGH4	2,3	1	FCALK318H	-	Top Hole #8-400kcmil Cu or #6-500kcmil Al. Bottom hole #2/0-600kcmil Cu & Al
SKHA8	SKLA8, SKPA8	2,3	1	TCAL41	1	#4-600kcmil or 2(1/0-250kcmil)
				TCAL61	2	2/0-500kcmil
				TCAL81	3	3/0-500kcmil

## Wiring Space

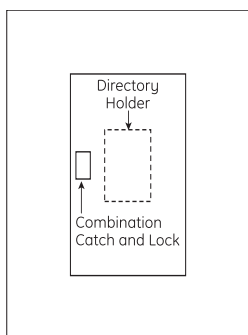
### Typical Panelboard

Front view with trim removed

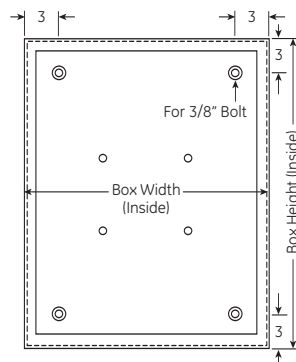


### Typical Front w/Concealed Hinges and Trim Adjusting Screws

Surface mounting – add 1/4" to inside box dimensions  
Flush mounting – add 1 1/2" to inside box dimensions



### Typical Box



### Minimum Wiring Space, From End of Lug to Box Wall, in Inches

Main rating in amps	Main Lugs Only, to End Wall		Frame Type	Mounting	Main Circuit Breaker		
	Phase Lug	Neutral Lug			Phase Lug To Side Wall (20" Wide box)	To End Wall	Neutral Lug
125A MLO, 100A Main Breaker	6	6	TEY, SE	Horizontal	5	-	6
225A	12	12	TFJ, SF	Vertical	-	6	12
400A	15	11 (1)	SF, SG, FG	Vertical	-	15	11 (1)
600A	15	11 (1)	SG	Vertical	-	16	-
800A (2)	15	11 (1)	SK	Vertical	-	18	-

(1) To side wall

(2) Box width is 30" and 7.81" deep

### Wiring Space – Branch Circuit Breakers

Branch Circuit Devices	Frame	No. of Poles	Minimum Wiring Spaces To Side Wall (20" Wide Box)
Double Branched Bolt-on Devices	TEY	1,2,3	6.5"
Horizontal Subfeeds, Single Branch Mounted, Maximum 6 Poles	TED4	2,3	5.5"
Horizontal Subfeeds, Single Branch Mounted, Maximum 3 Poles	SEHA, SELA	2,3	
Horizontal Subfeeds, Single Branch Mounted, Maximum 6 Poles	SFHA, SFLA	2,3	5.5"

### Enclosures

Panel Size	Box Cat. No. (1)	Size Inches (2)	Front Cat. No. (3)
0-25.5	AB25B	25.5	AF25F,S
28.5-31.5	AB31B	31.5	AF31F,S
34.5-37.5	AB37B	37.5	AF37F,S
40.5-43.5	AB43B	43.5	AF43F,S
46.5-49.5	AB49B	49.5	AF49F,S
52.5-55.5	AB55B	55.5	AF55F,S
57.5-64.5	AB64B	64.5	AF64F,S
67.5-76.5	AB76B	76.5	AF76F,S

(1) "B" suffix provides blank end walls. Order "K" suffix for endwalls with knockouts.

(2) Standard boxes are 20" wide by 5.81" deep.

(3) Flush fronts are 1 1/2" larger than box. Surface fronts are 1/4" larger.

### Front Options

Description	Cat. No. Suffix (1)
Screw cover	C
Front hinged to box	D
Yale 5116 w/Rosette Lock	Y
Corbin 15767 Lock	L
GE 75 Key Lock	E
Corbin 60 Key Lock	J
Door within a door (2)	P
Stainless steel (3)	S
30" wide	W
Nameplate	N
Screw on nameplate	U
Metal directory	M

- (1) Add to base front catalog number.  
(2) Consists of two lockable doors—one over panel interior and one over box wiring gutters. Yale locks not available.  
(3) Flush only. Available with C and N options.

### Box Options

Description	Cat. No. Suffix (1)
Painted Box	P
30" wide (2)	W
NEMA 3R/12/4S/4X	3 or 4
NEMA 4X (316 Stainless Steel)	4S

(1) Add to base box product number.

(2) Includes field installable gutter barrier.

### Permanent Circuit Number Kits

Description	Cat. No.
1-48	APN48
43-84	APN84
85-126	APN126

### Stainless Steel Enclosures

Dimensions (inches)			Cat No.	
H	W	D	UL Standard	CSA Labeled
25.5	20	6	AB254S	AB254AS
25.5	30	8	AB254DWS	AB254DWSAS
31.5	20	6	AB314S	AB314AS
31.5	30	8	AB314DWS	AB314DWSAS
37.5	20	6	AB374S	AB374AS
37.5	30	8	AB374DWS	AB374DWSAS
43.5	20	6	AB434S	AB434AS
43.5	30	8	AB434DWS	AB434DWSAS
49.5	20	6	AB494S	AB494AS
49.5	30	8	AB494DWS	AB494DWSAS
55.5	20	6	AB554S	AB554AS
55.5	30	8	AB554DWS	AB554DWSAS
64.5	20	6	AB644S	AB644AS
64.5	30	8	AB644DWS	AB644DWSAS
76.5	20	6	AB764S	AB764AS
76.5	30	8	AB764DWS	AB764DWSAS

## Accessories

Field Installed Kits/Replacement Parts

### Filler Plates

Breaker Type	Cat. No.
THQB/THHQB/THQL/THHQL/TEY	TQLFP1
TQD/THQD/TED4/SE/FB	TEDFP1

### Endwall Kits

Field installed.  
1 each, for  
standard 20"w x  
5.81"d boxes.

Type	Cat. No.
Blank	ABEW2
Knockout	ABEW2

### Breaker Mounting Hardware Kits

For mounting breaker in existing space

Breaker Type	Cat. No.
TED/THED4/SE	ASPTED3P
TQD/THQD	ASPTQD3P
FB	ASPFB12P

### Equipment Grounds



AEBG



AEIG



ASPGIBC



AEBGC



AEIGC

Item	Description	Wire Range	Cat. No.
Metal Equipment Ground	Bonded	#14-#8 Cu, #12-#8 Al (small holes); #14-#4 Cu, #6-#4 Al (large holes)	TGL2
	Extruded Bonded	#14-#8 Cu, #12-#8 Al (small holes); #14-#4 Cu, #6-#4 Al (large holes)	EGS12
Aluminum Equipment Ground	Extruded Bonded	(1) #6-350MCM	AEBG
	Extruded Isolated	(2) #6-250MCM	AEIG
	Main Lug	#14-#8 Cu, #12-#8 Al (small holes); #14-#4 Cu, #6-#4 Al (large holes)	TGL2
Copper Equipment Ground	Bonded	#14-#8 Cu, #12-#8 Al (small holes); #14-#4 Cu, #6-#4 Al (large holes)	TGC2
	Extruded Bonded	(1) #4-350MCM	AEBGC
	Extruded Isolated	(1) #6-250MCM	AEIGC
	Insulated Isolated	2/0 max.	ASPGIBC

### Bonding Kits

Description	Cat. No.
For Split & Load End Neutral	343L886G16
For 225A Horizontal Neutrals	343L886G13
225A Horizontal Neutral To Convert 3W to 4W	ASP225HNCP
125/225A Horizontal Neutral Conversion from Service Entrance to Non-Service Entrance	ASPHNCPSENOT
125/225A Horizontal Neutral to Convert from Non-Service Entrance to Service Entrance.	ASPHNCPSE

### Installation & Maintenance Kit

Order catalog number PROCARE. Kit includes:

- (5) filler plate hardware kits
- (9) bus stud nuts
- (5) MLA1 filler plates
- (2) 225A phase barriers
- (2) feed-thru barriers
- (1) 400/600A phase barrier
- (50) directory cards/rating books
- (50) circuit number strips (1-48)
- (50) circuit number strips (43-84)
- (5) standard locks & keys
- (50) deadfront screws
- (10) AQ/AE front hardware kits
- (10) AD front hardware kits
- (50) service disconnect labels
- (50) main labels

## Parts

Description	Cat. No.
Directory Card	139C5612P3
Replacement Lock with Std. Key	569B737P1
Replacement Lock with GE75 Key	569B737P2
Additional Keys for Above Lock	569B737P5
Circuit Numbering Strips 1-48	569B806G1
Circuit Numbering Strips 49-84	569B806G2
Circuit Numbering Strips 85-126	569B806G3
Adhesive Backed Lamicoid Nameplate 3/4" x 3"	315A7190P1
Metal Directory Card Holder	139C5491G1
Directory Card Holder	139C5491P4
Delta Hi-leg Conversion Kit, to Add B-Phase Plug on AL Panels	APHBL
Bolt on AE/AQ Panels	APHBQ
NEMA 3R/12 Tamper Proof Tork Screw Kit	NEMATRX
2P to 3P TQD Conv. Kit	ASP2PTQD3P
2P to 3P SF Conv. Kit for horizontal subfeed	ASP2PTFJ3P
AD 25 to 65 kAIC Barrier kit	ASP25AD65KA1
Service Entrance Kit	ASPSERENT
2 wire Relay Kit	ASP2WRelay
Yale Lock Kit	ASPYALE47
Corbin Lock Kit	ASPCORBNTU1
2-3 pole TQD Mechanical Interlock	TQDFM1
AQ/AL/AE Rail Bracket	ASPAQLEBKT
Front Flush Adjust Kit	ASPFLUSHADJ
AE Front Mounting Kit	139C5720G3
AQ/AL Front Mounting Kit	139C5720G6
AD Front Mounting Kit	139C5728G9
Front Hinge to Box Mounting Kit	139C5700G6
Front Extension Mounting Kit	139C5700G11

### Box Extensions

Bolts to box with or without endwall in place. Extensions can be combined to obtain lengths greater than 18 and 24 inches.

Box Width and Depth	Box Mounting	Box Extension Length (Inches)	Cat. No.
20 x 5.81	Flush	9	ABX2509F
		18	ABX2518F
		24	ABX2524F
	Surface	9	ABX2509S
		18	ABX2518S
		24	ABX2524S
		31	ABX2531S
		37	ABX2537S
		43	ABX2543S
		49	ABX2549S
		55	ABX2555S
		64	ABX2564S
		76	ABX2576S
30 x 5.81	Flush	18	ABX3518F
		24	ABX3524F
	Surface	18	ABX3518S
		24	ABX3524S
30 x 7.81	Flush	18	ABX3718F
		24	ABX3724F
	Surface	18	ABX3718S
		24	ABX3724S

### Box Extension Covers Only

10 covers per kit

Description	Cat. No.
9" Covers Surface	ASPABX09S
9" Covers Flush	ASPABX09F
18" Covers Surface	ASPABX18S
18" Covers Flush	ASPABX18F
64" to 76" Covers Surface	ASPABX20S
64" to 76" Covers Flush	ASPABX20F

## Specifications

A-Series Panelboards and branch breakers meet or exceed the following standards and specifications:

- UL 50 Cabinets and Boxes
- UL 67 Panelboards
- UL 489 Circuit Breakers
- NEMA AB-1 Circuit Breakers
- NEMA PB-1 and PB-1.1 Panelboards
- US Federal Spec W-P.115B Panelboards
- US Federal Spec W-C375b Gen Circuit Breakers

### *Boxes*

- Galvanized steel
- Blank end walls are standard; knockouts are available when specified
- Boxes furnished with provisions for ground bus as standard

### *Fronts*

- Finished in ANSI-61 grey polyester powder coat paint.
- Equipped with corrosion-resistant Valox combination catch and lock door latch (doors over 48" high provided with 2 latches)
- Equipped with concealed hinges and trim adjusting screws
- Directory holder permanently mounted to door

### *Panels*

- Dead front construction
- Interiors are factory assembled on rigid steel frames
- Metal gages in accordance with UL and NEMA standards
- Solderless, anti-turn main lugs suitable for copper or aluminium wires are front removable and branch straps are silver-plated copper fully rated at 100 amperes
- Main bus is aluminum with copper branch connections unless otherwise specified
- Main disconnect device is identified when supplied, and numbers are provided for branch circuits
- Interior base assemblies are Noryl and provide breaker mounting and busbar insulation

## Publications

E-DET-465	Certification of Seismic Compliance
DE-43A	Typical AE Panelboard Technical Information
DEH 40007	Lighting Panels Rating Labels, Wiring Diagrams and Circuit Directory
DEH 047	TED, THED, SED, SHE, SEL, SEP Circuit Breaker Mounting Instructions
DEH 059	SGH, SFL, SFP Circuit Breaker Mounting Instructions
DEH 060	SGH, SGL, SGP Circuit Breaker Mounting Instructions
DEH 061	SKH, SKL, SKP Circuit Breaker Mounting Instructions
DEH 065	TQD, THQD Circuit Breaker Mounting Instructions

### **GE**

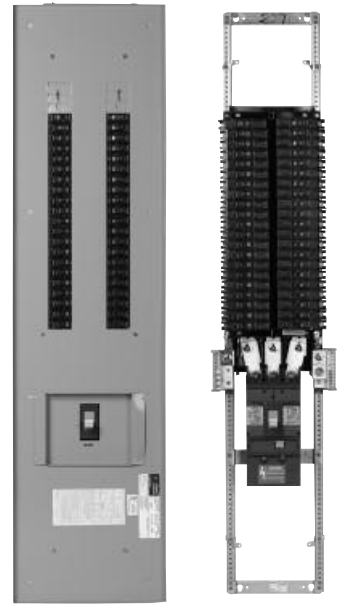
41 Woodford Avenue, Plainville, CT 06062

[www.geelectrical.com](http://www.geelectrical.com)

© 2008 General Electric Company



imagination at work



# Typical AQ/AL Panelboard

## Installation

Consult instructions NEMA PB-1.1 located in the circuit directory on the front door before installing this panelboard. If necessary, order replacement manual from supplier.

## Wiring Guidelines (Cu or Al)

- Use 60°C or 75°C ampacity sized wire on line and neutral and equipment ground terminals.
  - Standard wire sizes listed in this publication may be changed by using alternate terminal kits.
  - Refer to circuit breakers for allowable wire temperature rating, wire size and tightening torque.
  - Neutral rated for 200% panelboard phase current option.
    - Use copper wire only at neutral main lugs
      - 125A (1) neutral cables 250 mcm maximum
      - 225A (2) neutral cables 250 mcm maximum
      - 400A (2) neutral cables 600 mcm maximum
      - 600A (4) neutral cables 350 mcm maximum
- Suitable for nonlinear loads, 200% rated neutral, additional "Y" lugs provided for 200% neutral.

## Short Circuit Current Rating

The panelboard's maximum short circuit interrupting rating in rms symmetrical amperes, is equal to the lowest interrupting rating of any device installed, except as noted in the series rating listed in DEH-40007, with integral or remote main circuit breaker or fusible switch installed upstream of the panelboard. Devices to be installed or replacement units shall be from the same manufacturer, of the same type, and have equal or greater interrupting capacity.

Maximum continuous loads on main or branch circuits shall not exceed 80% of the ratings of the listed circuit breakers. Branch breaker straps suitable for 180A maximum.

## Tripped Breaker

If the breaker trips, handle will be in intermediate position.

## Instructions To Restore Power

1. Move handle to OFF position.
2. Then move handle to ON position.

## Seismic Rating

Meets or Exceeds the Requirements According to

- **IEEE-693-2005**  
High Level with 1.8 Amplification Factor
- **IBC-2006**  
Sds = 1.3g, Ss = 200%, Ip = 1.5, for z/h > 0  
Sds = 2.0g, Ss = 300%, Ip = 1.5, for z/h = 0  
In accordance with ICC-ES-AC156

## Polybag Contents

A polybag of goods supplied with every panelboard interior contains:

- Arc flash label
- DEH-40007 Series Ratings, Wiring Diagrams & Circuit Directory
- Series rating sticker
- Front installation instructions
- ANSI PB1 documentation
- Circuit numbering stickers (1-84)
- Front and shield mounting screws



imagination at work



## Torque

### Tightening Torque

Applies to line, neutral and equipment ground terminal

Slotted Screw		
AWG Wire	Lbs-In	
	Min	Max
14-10	32	35
8	36	40
6-4	41	45
3-2/0	45	50

Internal Hex		
Hex Size	Lbs-In	
	Min	Max
3/16	108	120
1/4	180	200
5/16	240	275
3/8	330	375
1/2	450	500

### Torque Values for Hardware

Screw Size	Torque (In-Lbs)
#4 Steel	16
#10 Plastic	16
#8 Cu/Al/Steel	24
#10-32 Cu/Al/Steel	32
1/4-20 Al/<.150 Thick Cu	44
1/4-20 .150 Thick Cu	60
5/16-18 Cu/Al/Steel	110
3/8-16 Cu/Al/Steel	220
1/2-13 Cu/Al/Steel	220

## Lug Kits

### Lug Kits for A-Series II Panelboards

Rating	Pressure Lug Kit		Crimp Lug Kit		Pressure Lug Kit	
	Cat. No.	Wire Range Al/Cu	Cat. No.	Wire Range Al/Cu	Cat. No.	Wire Range Cu Only
125A	MLA1	6-350	MLT1	4-300	MLR1	4-350
225A	MLA2	1/0-250	MLT2	2/0 - 500	MLR2	1/0-600
400A	Standard - MLA41	4-600	MLT41	500-750 (Cu Only)	MLR41	1/0-600
	Oversize - MLA62	3/0 - 800 (Main) & 4-600 (Neutral)	-	-	-	-
600A	Standard -MLA61	4-500	-	-	MLR61	1/0-600

### Crimp Tools

Wire	Crimp Tool
All Al & Up to 500 MCM Cu	Hubbell Anderson VC6
500-750 MCM Cu	Hubbell Anderson VC7
Up to #6-1000 MCM Cu & #5-750 Kcmil Al	Burndy Tool Y644HS

### Neutral Lug Z

Holes	Wire Size - Cu / Al
Large	2 / 0 - 14
Small	No. 4 - 14



Arc fault label included with all interiors to be applied by electrical contractor.

## Interrupting Ratings - Molded Case Circuit Breakers

Molded Case Circuit Breakers						Federal Spec	UL Listed Interrupting Ratings in kA						
Construction	Frame	Trip Range (Amps)	Pole	AC	DC	C/B Class W-C-375B	RMS Symmetrical AC Volts						
							120	120/ 240	240	277	480Y/277	480	600
HQ Frame	THQB	15-70	1	120/240		12a	10	10					
	THQL	15-125	2	120/240		12a		10					
		15-100	2,3	240		12a			10				
	THQL-GF	15-30	1,2	120/240				10					
	THQL-HID	15-20	1,2	120/240				10					
	THQB-GF	15-30	1,2	120/240				10					
	THQB-HID	15-20	1,2	120/240				10					
HHQ Frame	TXQB	15-30	1,2	120/240				65					
	THHQB	15-70	1	120/240		14a	22	22					
		15-125	2	120/240		14a		22					
	THHQL	15-100	2	240		14b			22				
		15-100	3	240		14b			22				
	THHQL-GF	15-30	1	120/240				22					
	THHQL-HID	15-20	1,2	120/240				22					
Standard Frames	THHQB-GF	15-30	1	120/240				22					
	THHQB-HID	15-20	1,2	120/240				22					
Hi-Break Frames	TQD	125-225	2,3	240		12b			10				
	TJD	250-400	2,3	240	250 (1)	14b			22				
Spectra RMS	THQD	125-225	2,3			N/A			22				
	SEH (2)	15-150	2	480		13b, 15b			65			25	
			3	600		22a			65			25	18
	SEL	15-150	2	480		13b, 15b			100			65	
			3	600		21a, 22a, 23a			100			65	25
	SEP	15-150	2	480		16a			200			100	
			3	600		16a, 23a			200			100	25
	SFH	70-250	2	480		13b			65			35	
			3	600		20a, 22a			65			35	22
	SFL	70-250	2	480		13b			100			65	
			3	600		21a, 23a			100			65	25
	SFP	70-250	2	480		16a			200			65	
			3	600		16a, 23a			200			65	25
	SGH4 (2)	125-400	2,3	600		21a, 23a			65			35	25
	SGH6 (2)	250-600	2,3	600		23a			65			35	25
	SGL4	125-400	2,3	600		23a			100			65	65
	SGP4	125-400	2,3	600		23a			200			100	65
	SGL6	250-600	2,3	600		24a			100			65	65
	SGP6	250-600	2,3	600		25a			200			100	65
	SKH8	300-800	2,3	600		21a, 23a			65			50	25
	SKL8	300-800	2,3	600		24a			100			65	42
	SKP8	300-800	2,3	600		25a			200			100	65

(1) 3 Poles are not DC rated

(2) Not current limiting breaker type

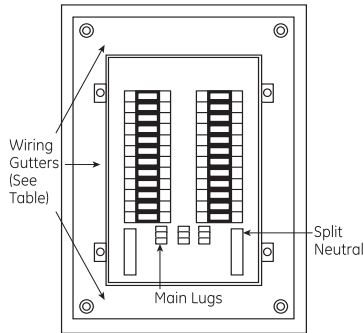
## Circuit Breaker Terminals (Cu-Al)

Frame		Poles	No. per Pole	Cat. No.	Wire Cu-Al (Unless otherwise specified)	
Standard	Current Limiting / High Interrupting				Per Lug	Range
THQB, TXQB, THHQB, THQL, THHQL, TXQL	-	1,2,3	1	Fixed to Breaker Terminal	1	(15-30A) #14-4 Cu or #12-4 Al, (35-100A) #14-10 Cu or #12-1/0 Al
-	SEH, SEL, SEP	2,3	1	TCAL18	1	#12-3/0 Al; #12-3/0 Cu
SFHA	SFLA, SFPA	2,3	1	TCAL129	1	#8-350kcmil
SGHA	SGL, SGP	2	1	TCLK265	-	2 (2/0-400kcmil, Cu) or 2 (2/0-500kcmil, Al) or #6-600kcmil
		3	1	TCLK365	-	2 (2/0-400kcmil, Cu) or 2 (2/0-500kcmil, Al) or #6-600kcmil
-	FGN4, FGH4	2,3	1	FCALK318H	-	Top Hole #8-400kcmil Cu or #6-500kcmil Al. Bottom hole #2/0-600kcmil Cu & Al
SKHA8	SKLA8, SKPA8	2,3	1	TCAL41	1	#4-600kcmil or 2(1/0-250kcmil)
				TCAL61	2	2/0-500kcmil
				TCAL81	3	3/0-500kcmil

## Wiring Space

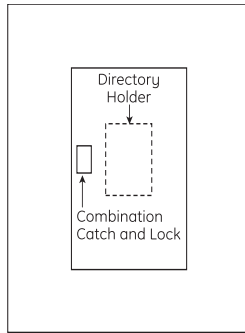
### Typical Panelboard

Front view with trim removed

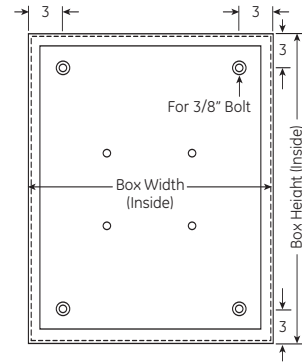


### Typical Front w/Concealed Hinges and Trim Adjusting Screws

Surface mounting – add 1/4" to inside box dimensions  
Flush mounting – add 1 1/2" to inside box dimensions



### Typical Box



### Minimum Wiring Space, From End of Lug to Box Wall, in Inches

Main rating in amps	Main Lugs Only, to End Wall		Frame Type	Mounting	Main Circuit Breaker		
	Phase Lug	Neutral Lug			Phase Lug		Neutral Lug
					To Side Wall (20" Wide box)	To End Wall	
125A MLO, 100A Main Breaker	6	6	TEY, SE	Horizontal	5	-	6
225A	12	12	TFJ, SF	Vertical	-	6	12
400A	15	11 <sup>(1)</sup>	SF, SG, FG	Vertical	-	15	11 <sup>(1)</sup>
600A	15	11 <sup>(1)</sup>	SG	Vertical	-	16	-
800A <sup>(2)</sup>	15	11 <sup>(1)</sup>	SK	Vertical	-	18	-

(1) To side wall

(2) Box width is 30" and 7.81" deep

### Wiring Space – Branch Circuit Breakers

Branch Circuit Devices	Frame	No. of Poles	Minimum Wiring Spaces To Side Wall (20" Wide Box)
Double Branched Bolt-on Devices	THQL, THHQL, THQB, THHQB	1,2,3	6.5"
Horizontal Subfeeds Single Branch Mounted	TQD, THQD	2,3	5.5"

### Enclosures

Panel Size	Box Cat. No. (1)	Size Inches (2)	Front Cat. No. (3)
0-25.5	AB25B	25.5	AF25F,S
28.5-31.5	AB31B	31.5	AF31F,S
34.5-37.5	AB37B	37.5	AF37F,S
40.5-43.5	AB43B	43.5	AF43F,S
46.5-49.5	AB49B	49.5	AF49F,S
52.5-55.5	AB55B	55.5	AF55F,S
57.5-64.5	AB64B	64.5	AF64F,S
67.5-76.5	AB76B	76.5	AF76F,S

(1) "B" suffix provides blank end walls. Order "K" suffix for endwalls with knockouts.

(2) Standard boxes are 20" wide by 5.81" deep.

(3) Flush fronts are 1 1/2" larger than box. Surface fronts are 1/4" larger.

### Box Options

Description	Cat. No. Suffix (1)
Painted Box	P
30" wide (2)	W
NEMA 3R/12/4S/4X	3 or 4
NEMA 4X (316 Stainless Steel)	4S

(1) Add to base box product number.

(2) Includes field installable gutter barrier.

### Permanent Circuit Number Kits

Description	Cat. No.
1-48	APN48
43-84	APN84
85-126	APN126

### Front Options

Description	Cat. No. Suffix (1)
Screw cover	C
Front hinged to box	D
Yale 5116 w/Rosette Lock	Y
Corbin 15767 Lock	L
GE 75 Key Lock	E
Corbin 60 Key Lock	J
Door within a door (2)	P
Stainless steel (3)	S
30" wide	W
Nameplate	N
Screw on nameplate	U
Metal directory	M

(1) Add to base front catalog number.

(2) Consists of two lockable doors—one over panel interior and one over box wiring gutters. Yale locks not available.

(3) Flush only. Available with C and N options.

### Stainless Steel Enclosures

Dimensions (inches)			Cat No.	
H	W	D	UL Standard	CSA Labeled
25.5	20	6	AB254S	AB254AS
25.5	30	8	AB254DWS	AB254DWS
31.5	20	6	AB314S	AB314AS
31.5	30	8	AB314DWS	AB314DWS
37.5	20	6	AB374S	AB374AS
37.5	30	8	AB374DWS	AB374DWS
43.5	20	6	AB434S	AB434AS
43.5	30	8	AB434DWS	AB434DWS
49.5	20	6	AB494S	AB494AS
49.5	30	8	AB494DWS	AB494DWS
55.5	20	6	AB554S	AB554AS
55.5	30	8	AB554DWS	AB554DWS
64.5	20	6	AB644S	AB644AS
64.5	30	8	AB644DWS	AB644DWS
76.5	20	6	AB764S	AB764AS
76.5	30	8	AB764DWS	AB764DWS

## Accessories

Field Installed Kits/Replacement Parts

### Filler Plates

Breaker Type	Cat. No.
THQB/THHQB/THQL/THHQL/TEY	TQLFP1
TQD/THQD/TED4/SE/FB	TEDFP1

### Endwall Kits

Field installed.  
1 each, for  
standard 20"w x  
5.81"d boxes.

Type	Cat. No.
Blank	ABEW2
Knockout	ABEW2

### Breaker Mounting Hardware Kits

For mounting breaker in existing space

Breaker Type	Cat. No.
TED/THED4/SE	ASPTED3P
TQD/THQD	ASPTQD3P
FB	ASPFB12P

### Equipment Grounds



AEBG



AEIG



ASPGIBC



AEBGC



AEIGC

Item	Description	Wire Range	Cat. No.
Metal Equipment Ground	Bonded	#14-#8 Cu, #12-#8 Al (small holes); #14-#4 Cu, #6-#4 Al (large holes)	TGL2
	Extruded Bonded	#14-#8 Cu, #12-#8 Al (small holes); #14-#4 Cu, #6-#4 Al (large holes)	EGS12
Aluminum Equipment Ground	Extruded Bonded	(1) #6-350MCM	AEBG
	Extruded Isolated	(2) #6-250MCM	AEIG
	Main Lug	#14-#8 Cu, #12-#8 Al (small holes); #14-#4 Cu, #6-#4 Al (large holes)	TGL2
Copper Equipment Ground	Bonded	#14-#8 Cu, #12-#8 Al (small holes); #14-#4 Cu, #6-#4 Al (large holes)	TGC2
	Extruded Bonded	(1) #4-350MCM	AEBGC
	Extruded Isolated	(1) #6-250MCM	AEIGC
	Insulated Isolated	2/0 max.	ASPGIBC

### Bonding Kits

Description	Cat. No.
For Split & Load End Neutral	343L886G16
For 225A Horizontal Neutrals	343L886G13
225A Horizontal Neutral To Convert 3W to 4W	ASP225HNCP
125/225A Horizontal Neutral Conversion from Service Entrance to Non-Service Entrance	ASPHNCPSENOT
125/225A Horizontal Neutral to Convert from Non-Service Entrance to Service Entrance.	ASPHNCPSE

### Installation & Maintenance Kit

Order catalog number PROCARE. Kit includes:

- (5) filler plate hardware kits
- (9) bus stud nuts
- (5) MLA1 filler plates
- (2) 225A phase barriers
- (2) feed-thru barriers
- (1) 400/600A phase barrier
- (50) directory cards/rating books
- (50) circuit number strips (1-48)
- (50) circuit number strips (43-84)
- (5) standard locks & keys
- (50) deadfront screws
- (10) AQ/AE front hardware kits
- (10) AD front hardware kits
- (50) service disconnect labels
- (50) main labels

## Parts

Description	Cat. No.
Directory Card	139C5612P3
Replacement Lock with Std. Key	569B737P1
Replacement Lock with GE75 Key	569B737P2
Additional Keys for Above Lock	569B737P5
Circuit Numbering Strips 1-48	569B806G1
Circuit Numbering Strips 49-84	569B806G2
Circuit Numbering Strips 85-126	569B806G3
Adhesive Backed Lamicoid Nameplate 3/4" x 3"	315A7190P1
Metal Directory Card Holder	139C5491G1
Directory Card Holder	139C5491P4
Delta Hi-leg Conversion Kit, to Add B-Phase Plug on AL Panels	APHBL
Bolt on AE/AQ Panels	APHBQ
NEMA 3R/12 Tamper Proof Tork Screw Kit	NEMATRX
2P to 3P TQD Conv. Kit	ASP2PTQD3P
2P to 3P SF Conv. Kit for horizontal subfeed	ASP2PTFJ3P
AD 25 to 65 kAIC Barrier kit	ASP25AD65KA1
Service Entrance Kit	ASPSERENT
2 wire Relay Kit	ASP2WRelay
Yale Lock Kit	ASPYALE47
Corbin Lock Kit	ASPCORBNTU1
2-3 pole TQD Mechanical Interlock	TQDFM1
AQ/AL/AE Rail Bracket	ASPAQLEBKT
Front Flush Adjust Kit	ASPFLUSHADJ
AE Front Mounting Kit	139C5720G3
AQ/AL Front Mounting Kit	139C5720G6
AD Front Mounting Kit	139C5728G9
Front Hinge to Box Mounting Kit	139C5700G6
Front Extension Mounting Kit	139C5700G11

### Box Extensions

Bolts to box with or without endwall in place. Extensions can be combined to obtain lengths greater than 18 and 24 inches.

Box Width and Depth	Box Mounting	Box Extension Length (Inches)	Cat. No.
20 x 5.81	Flush	9	ABX2509F
		18	ABX2518F
		24	ABX2524F
	Surface	9	ABX2509S
		18	ABX2518S
		24	ABX2524S
		31	ABX2531S
		37	ABX2537S
		43	ABX2543S
		49	ABX2549S
		55	ABX2555S
		64	ABX2564S
		76	ABX2576S
30 x 5.81	Flush	18	ABX3518F
		24	ABX3524F
	Surface	18	ABX3518S
		24	ABX3524S
30 x 7.81	Flush	18	ABX3718F
		24	ABX3724F
	Surface	18	ABX3718S
		24	ABX3724S

### Box Extension Covers Only

10 covers per kit

Description	Cat. No.
9" Covers Surface	ASPABX09S
9" Covers Flush	ASPABX09F
18" Covers Surface	ASPABX18S
18" Covers Flush	ASPABX18F
64" to 76" Covers Surface	ASPABX20S
64" to 76" Covers Flush	ASPABX20F

## Specifications

A-Series Panelboards and branch breakers meet or exceed the following standards and specifications:

- UL 50 Cabinets and Boxes
- UL 67 Panelboards
- UL 489 Circuit Breakers
- NEMA AB-1 Circuit Breakers
- NEMA PB-1 and PB-1.1 Panelboards
- US Federal Spec W-P.115B Panelboards
- US Federal Spec W-C375b Gen Circuit Breakers

### *Boxes*

- Galvanized steel
- Blank end walls are standard; knockouts are available when specified
- Boxes furnished with provisions for ground bus as standard

### *Fronts*

- Finished in ANSI-61 grey polyester powder coat paint.
- Equipped with corrosion-resistant Valox combination catch and lock door latch (doors over 48" high provided with 2 latches)
- Equipped with concealed hinges and trim adjusting screws
- Directory holder permanently mounted to door

### *Panels*

- Dead front construction
- Interiors are factory assembled on rigid steel frames
- Metal gages in accordance with UL and NEMA standards
- Solderless, anti-turn main lugs suitable for copper or aluminium wires are front removable and branch straps are silver-plated copper fully rated at 100 amperes
- Main bus is aluminum with copper branch connections unless otherwise specified
- Main disconnect device is identified when supplied, and numbers are provided for branch circuits
- Interior base assemblies are Noryl and provide breaker mounting and busbar insulation

## Publications

E-DET-465	Certification of Seismic Compliance
DE-42A	Typical AL/AQ Panelboard Technical Information
DEH 40007	Lighting Panels Rating Labels, Wiring Diagrams and Circuit Directory
DEH 047	TED, THED, SED, SHE, SEL, SEP Circuit Breaker Mounting Instructions
DEH 059	SGH, SFL, SFP Circuit Breaker Mounting Instructions
DEH 060	SGH, SGL, SGP Circuit Breaker Mounting Instructions
DEH 061	SKH, SKL, SKP Circuit Breaker Mounting Instructions
DEH 065	TQD, THQD Circuit Breaker Mounting Instructions

### GE

41 Woodford Avenue, Plainville, CT 06062

[www.geelectrical.com](http://www.geelectrical.com)

© 2008 General Electric Company



imagination at work



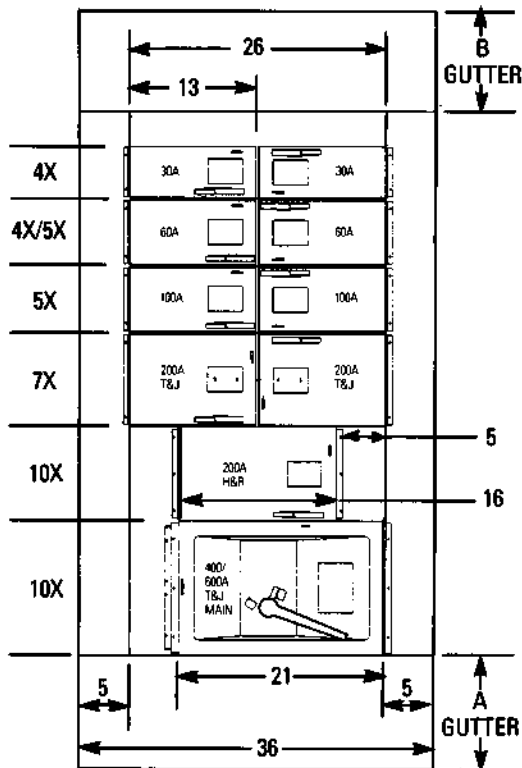
DE-166A Typical

## ***Spectra Series™ Power Panelboards***

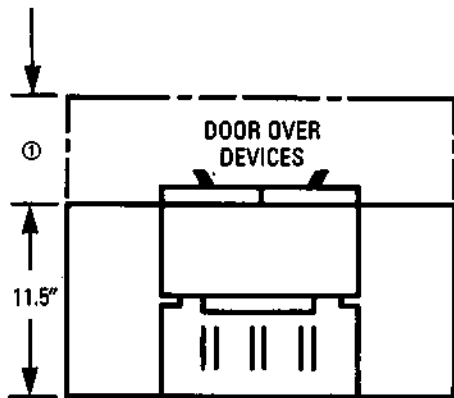
### **Fusible Mains and Feeders**



# Fusible Mains and Feeders

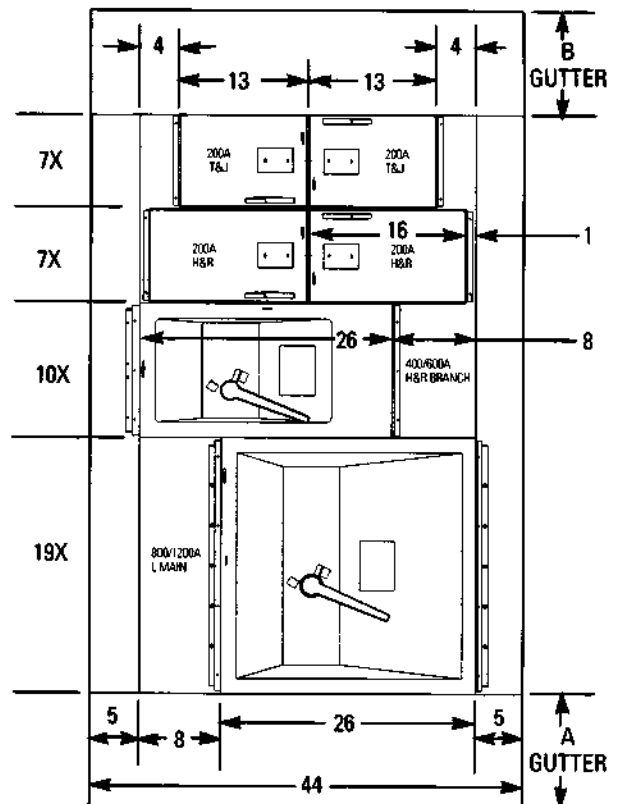


Typical 36" Wide Fusible Panel



Typical Sectional End View

① Standard 36" and 44" wide enclosures are 11.5" deep. When a door or NEMA3R/NEMA12 construction is required, the panelboard is 16.25" deep.



Typical 44" Wide Fusible Panel

## NOTES:

When 400A through 1200A devices are applied as main switches their line cables terminate on the left side. When these devices are mounted as branch devices the load cables terminate on the right side.

"A" gutter is located on the end with the main switch module or the main lug module. "B" gutter is located at the opposite end.

Boxes are furnished without knockouts.

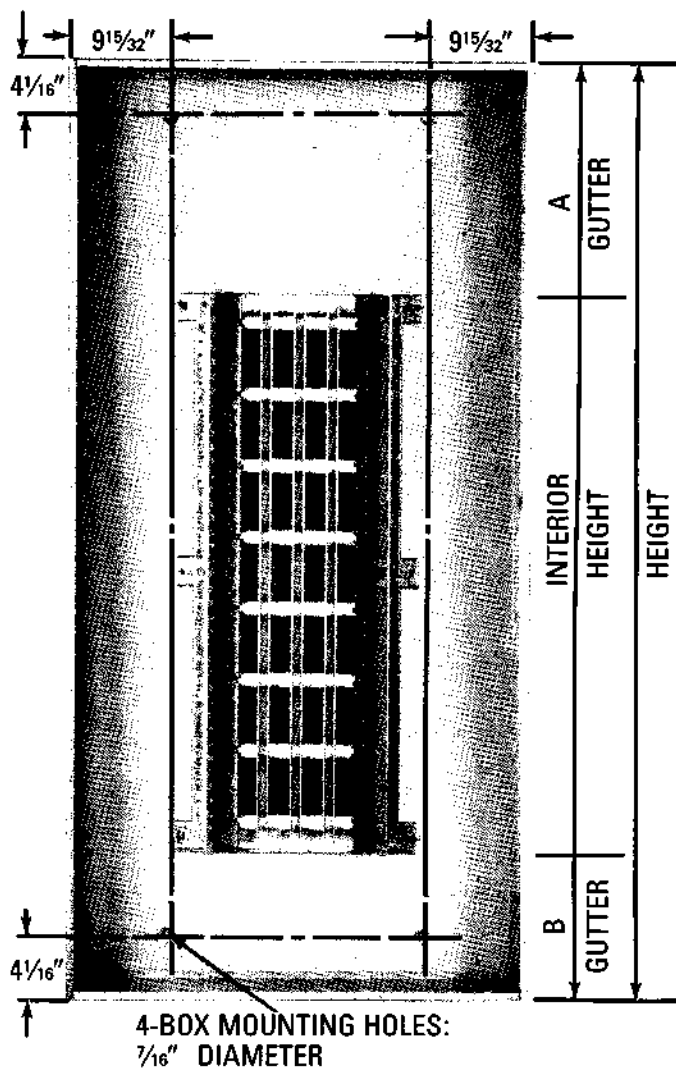
Note: X Value = 1.375"

## Main Lug Assemblies

Maximum Amp Rating (Single and Dual)	Lug Type	Box Widths	X-Height
250 400 600 800 1200	Mechanical	36" - 44"	4X
250 400 600 800 1200	Compression Mechanical 750 kcmil Lug Provisions	36" - 44"	6X

## Main Switch Modules

Main Rating Amps	Poles	Voltage	Available Fuse Class						X-Height	Minimum Enclosure Width
			H	J	K	L	R	T		
200	2/3	240	✓	—	✓	—	✓	—	7	36"
	2/3	600	✓	✓	✓	—	✓	—	7	36"
400	2/3	240	✓	—	✓	—	✓	✓	10	36" wide with J or T fuses. All others are 44" wide
	2/3	600	✓	✓	✓	—	✓	✓	10	
	2/3	240	✓	—	✓	—	✓	✓	10	
	2/3	600	✓	✓	✓	—	✓	✓	10	
800	2/3	600	—	—	—	✓	—	—	19	44"
	2/3	600	—	—	—	✓	—	—	19	44"



## Enclosures

Enclosure heights are determined by two criteria: interior height and main device rating (to provide adequate wire-bending space). Enclosure widths are determined by the largest main/branch device.

For NEMA1 construction, 36" and 44" wide enclosures are 11.50" deep. When a door or NEMA 3R/NEMA 12 construction is required, the enclosure depth is 16.25".

Main Amp Rating	Interior Height		Gutter Inches		Enclosure Dimensions	
	X-Height	Inches	A	B	Height Inches	Width Inches
250	18X	24.75	19.94	19.94	64.63	36
	23X	31.63	19.94	13.13	64.63	36
	28X	38.50	19.94	6.25	64.63	36
	38X	52.25	22.75	14.25	89.25	36
	48X	66.00	19.94	10.25	96.13	36
400	18X	24.75	19.94	19.94	64.63	36/44
	23X	31.63	19.94	13.13	64.63	36/44
	28X	38.50	22.75	14.25	75.50	36/44
	33X	45.38	22.75	21.25	89.25	36/44
	38X	52.25	22.75	14.25	89.25	36/44
	48X	66.00	19.94	10.25	96.13	36/44
600	23X	31.63	19.94 <sup>①</sup>	13.13 <sup>①</sup>	64.63 <sup>①</sup>	36/44
	28X	38.50	22.75	14.25	75.50	36/44
	33X	45.38	22.75	21.25	89.25	36/44
	38X	52.25	22.75	14.25	89.25	36/44
	43X	59.13	22.75	14.25	96.13	36/44
800	23X	31.63	22.75 <sup>①</sup>	21.25 <sup>①</sup>	75.50	36/44
	28X <sup>②③</sup>	38.50	22.75	14.25	75.50	36/44
	33X <sup>②③</sup>	45.38	22.75	21.25	89.25	36/44
	38X <sup>②③</sup>	52.25	22.75 <sup>①</sup>	14.25	89.25 <sup>①</sup>	36/44
	43X <sup>②</sup>	59.13	22.75	14.25	96.13	36/44
1200	23X	31.63	22.75 <sup>①</sup>	21.25 <sup>①</sup>	75.50	36/44
	28X <sup>②③</sup>	38.50	22.75	14.25	75.50	36/44
	33X <sup>②③</sup>	45.38	22.75	21.25	89.25	36/44
	38X <sup>②③</sup>	52.25	22.75 <sup>①</sup>	14.25	89.25 <sup>①</sup>	36/44
	43X <sup>②</sup>	59.13	22.75	14.25	96.13	36/44

① This dimension may change if dual main, feed through and neutral, or 200% neutral are provided.

② This enclosure is available for use with a single main and single neutral only.

③ This enclosure is not available for use with 200% neutrals.

## Branch Fusible Switch Units

Amps	Poles	Voltage	H	J	K	L	R	T	Mounting				Minimum Wiring Space To Side Wall	
									Module Config.	① Blank Option	X-Height	Minimum Enclosure Width	36" Box	44" Box
30	2/3	240	✓	—	✓	—	✓	—	Double	Yes	4	36"	5"	9"
	2/3	600	✓	✓	✓	—	✓	—	Double	Yes	4	36"	5"	9"
60	2/3	240	✓	—	✓	—	✓	—	Double	Yes	4	36"	5"	9"
	2/3	600	✓	✓	✓	—	✓	—	Double	Yes	5	36"	5"	9"
100	2/3	240	✓	—	✓	—	✓	—	Double	Yes	5	36"	5"	9"
	2/3	600	✓	✓	✓	—	✓	—	Double	Yes	5	36"	5"	9"
	2/3	240/600	—	—	—	—	—	✓	Double	Yes	7	36"	5"	9"
	2/3	240/600	✓	—	✓	—	✓	—	Double	No	7	44"	—	5"
200	2/3	240/600	✓	—	✓	—	✓	—	Single	No	7	36"	10"	14"
	2/3	240	—	—	—	—	—	✓	Double	Yes	7	36"	5"	6"
	2/3	600	—	✓	—	—	—	✓	Double	Yes	7	36"	5"	9"
	2/3	240/600	✓	—	✓	—	✓	—	Single	No	10	44"	—	13"
400/600	2/3	240	—	—	—	—	—	✓	Single	No	10	36"	10"	14"
	2/3	600	—	✓	—	—	—	✓	Single	No	10	36"	10"	14"
	2/3	600	—	—	—	—	—	✓	Single	No	10	36"	10"	14"
800/1200	2/3	600	—	—	—	✓	—	—	Single	No	19	44"	—	13"

① Fusible switch expansion kits are available for installation in empty (blank) halves of double-branch switch modules. Voltage and x-height must match switch in the double-branch module. If switch in module is two poles, expansion kit must be two poles.



## Termination Information

### Standard Main Lug Terminations (Al Mechanical)

Amp Rating	Single Main		Dual Main	
	Wire Size (Cu/Al)	Single Main Lugs-① # Wires Per Phase	Dual Wire Size (Cu/Al)	Dual Main Lugs-① # Wires Per Phase
250	#8 - 500 kcmil 2/0 - 600 kcmil	1 1	8 - 500 kcmil 2/0 - 600 kcmil	1 1
400	#8 - 500 kcmil 2/0 - 600 kcmil	1 1	2/0 - 600 kcmil	4
600	#8 - 500 kcmil 2/0 - 600 kcmil	1 1	2/0 - 600 kcmil	4
800	2/0 - 600 kcmil	4	2/0 - 600 kcmil	8
1200	2/0 - 600 kcmil	4	2/0 - 600 kcmil	8

① One lug per phase.

### Standard Fusible Switch Module Terminations (CU/AL Mechanical)

Amp Rating	Voltage	Wire Size (CU/AL)	# Wires Per Lug	# Lugs Per Phase
30	240/600	#2-#14	1	1
60	240	#2-#14	1	1
60	600	#14-1/0	1	1
100	240/600	#14-1/0	1	1
200	240/600	#6-250 MCM	1	1
400	240/600	1/0-250 MCM or #2-600 MCM	2 or 1	1
600	240/600	1/0-250 MCM or #2-600 MCM	2 or 1	2
800	600	1/0-250 MCM or #2-600 MCM	2 or 1	3
1200	600	1/0-250 MCM or #2-600 MCM	2 or 1	4

Ground lugs are available in kit form for field installation. Catalog numbers are included here for references.

### Ground Lug Terminations (CU/AL Mechanical)

Lug Quantity	Wire Size	Catalog Number	Insulated/Isolated
10	#6-2/0 CU/AL	AEG 10	No
12	<div> <div>#14-#8 CU #12-#8 AL</div> <div>or</div> <div>#12-#8 CU #12-#8 AL</div> <div>or</div> <div>#14-#8 CU #12-#8 AL</div> <div>or</div> <div>#10-#4 CU #10-#4 AL</div> </div> <div>Solid Stranded Solid Stranded</div>	AEG 21	No
12	Identical lug offering as listed above for Cat. #AEG 21	AEG 21S	Yes
9	Identical lug offering as listed above for Cat. #AEG 21		
12	Identical lug offering as listed for AEG 21	AEG 31S	Yes
9	Identical lug offering as listed for AEG 21		
10	#6-2/0 CU/AL		

## Standard Neutral Lug Terminations (Al Mechanical)

Amp Rating	Lug Type	Lug Quantity	Wire Size (Cu/Al)
250	Main	2	#2 - 600 kcmil
	Branch	24	#14 - #4
	Branch	15	#14 - 2/0
400	Main	2	#2 - 600 kcmil
	Branch	24	#14 - #4
	Branch	15	#14 - 2/0
600	Main	4	#2 - 600 kcmil
	Branch	4	#2 - 600 kcmil
	Branch	10	#14 - #4
800	Main	4	#2 - 600 kcmil
	Branch	4	#2 - 600 kcmil
	Branch	10	#14 - #4
1200	Main	4	#2 - 600 kcmil
	Branch	4	#2 - 600 kcmil
	Branch	10	#14 - #4

## GENERAL:

- Panelboards are listed and labeled by Underwriters Laboratories, Inc. in accordance with UL Standards 50 and 67, and shall conform to the latest requirements of the National Electrical Code and NEMA standard PB.1.
- The panelboard will meet service entrance requirements when specified.
- Federal specifications: panelboards, W-P-115a; fusible switches, W-S-865c.
- Boxes are corrosion-resistant galvanized (zinc finished) sheet steel with removable end walls. Boxes are furnished without knockouts. Panel fronts are cold-rolled steel, coated with a phosphatized rust inhibitor and then finish coated with ANSI 61 light gray enamel.
- A four-piece front is furnished to provide ease of wiring access. All screw fasteners are zinc coated to retard corrosion.
- Main and branch-fusible switches are of the positive, quick-make, quick-break type with double-break, over-center mechanism. The external handle is suitable for padlocking in the "OFF" position and is interlocked with the switch cover to prevent access to the switch interior when the switch is in the "ON" position—an interlock override release is provided. Fusible switch units are fully interchangeable without disturbing the adjacent units.
- Panelboards symmetrical interior is so designed and assembled that the circuit-protective modules (fused switches less than 800A) are mounted onto the bus bar with positive gripping jaw assemblies and locked pressure connections. The circuit-protective module can be removed or replaced without removing the main bus or branch circuit connections.
- Bus bars are current density rated and meet UL67 temperature rise limits thru actual tests. All bus bars are silver plated aluminum unless otherwise stated on the drawing.
- Bus bars are sequenced-phased, and rigidly supported by high-impact resistant, insulated bus supporting assemblies to prevent vibration and resulting damage when subjected to stress, vibration or short circuits. All solderless terminations are suitable for either copper or aluminum UL Listed wire or cable and have been tested and listed in conjunction with appropriate UL standards.
- Panelboards are so designed to permit the oncoming line conductors to enter either the top or bottom of the enclosure.
- The neutral bar is fully rated and capable of being relocated to either corner of the enclosure at the line end to facilitate conductor termination.
- Ground wire terminations is provided as an option in kit form suitable for installation by the panelboard installer without voiding UL label.



**GE Electrical Distribution & Control**

General Electric Company  
41 Woodford Ave., Plainville CT 06062  
www.ge.com/edc

## Installation Publications

ANK Neutral Assembly Kit Installation	GEH 6289
Equipment Grounding Kit	GEH 5586
APF Surface Front Trim Kit	GEH 5587
Installing Interior Into Box	GEH 5589

# TRANSFORMERS



**GE Consumer & Industrial**  
Specialty Transformer  
PO Box 1701  
Ft. Wayne, IN 46801  
(260) 439-2000

**GE MODEL #:**  
**9T83B3872G15**

Underwriters' Laboratories Inc Listed

**RATING:**

AL 3PH 60HZ 30.0KVA 480 +2,-4(2.5%TAPS) 208Y/120

Frame = EE72  
Temp. Rise (C) = 115    Insulation System = 220C  
Average Sound Level (dB) = 45

**LOSS DATA @ 100% LOAD:**

Core Loss or No Load Loss @ 100% voltage (Watts) =	207.0
Impedance Loss or Coil Loss @ Rise + 20C reference (Watts) =	<u>1,203.0</u>
Total Loss @ Rise + 20C reference (Watts) =	1,410.0

**DIELECTRIC AND PRODUCTION TESTING:**

Induce Test @ Twice rated voltage 400 Hz per ANSI C89.2 and NEMA ST-20  
Hipot Test for High Voltage winding to Low Voltage and Ground @ 4000 volts 60 Hz 60 Sec.  
Hipot Test for Low Voltage winding to High Voltage and Ground @ 2500 volts 60 Hz 60 Sec.  
Polarity additive in accordance with ANSI C89.2 and NEMA ST-20

**EFFICIENCY:**

Efficiencies at reference temperature of Rise + 20C (Calculated).

Load (%)	Efficiency (%)
35	at least 97.5

**IMPEDANCE:**

Impedance at reference temperature of Rise + 20C (Calculated).

%R =	3.7
%X =	4.2
%Z =	5.6

**REGULATION:**

Regulation at reference temperature of Rise + 20C (Calculated).

PF	Regulation (%)
1.0	3.8
0.8	5.5



# Transformer



\*M0000000\*

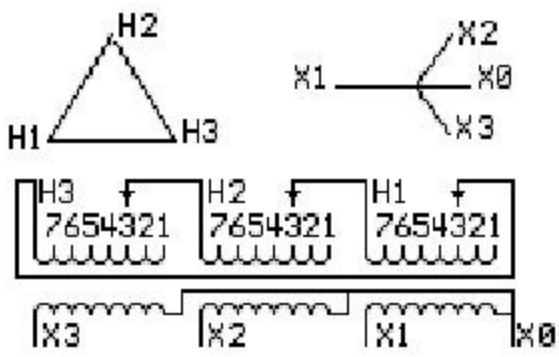
Catalog Number      Type QL

9T83B3872G15

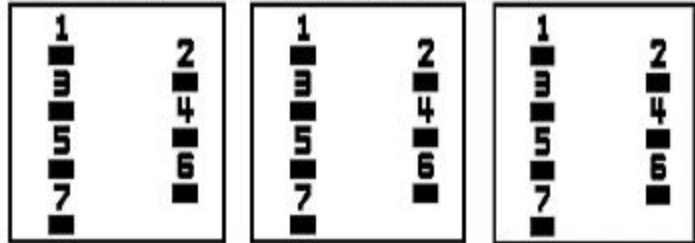
30.0 KVA    60 HZ    3 PH 6.3 % IMP

40 C AMB.    115 C RISE    220 C SYSTEM    IS-19C

PRIMARY (H)    480 VOLTS (LINE-LINE)  
SECONDARY (X)    208 VOLTS (LINE-LINE)  
                         120 VOLTS (LINE-NEUTRAL)



### COIL TAP ARRANGEMENT



### JUMPER CONNECTION TAP VOLTS

1	503
2	491
3	480
4	467
5	456
6	445
7	434

### NET WGT

334 LB  
151.5 Kg  
9T83B3872G15  
27327  
XU372  
N0G  
013013

INSPECTION  
&  
FINAL TEST  
N305!



LISTED 769G

ENCLOSURE TYPE 2 (IP30). RAINPROOF TYPE 3R ENCLOSURE (IP32) WHEN PROVIDED SHIELD 9T18Y4317G05

Assembled in Mexico

BEFORE HANDLING, INSTALLING AND OPERATING, SEE INSTRUCTION 475A667AAP001      Outline: 303B401AAP072

ALUMINUM CONDUCTOR      PRIMARY: 10 KV BIL      SECONDARY: 10 KV BIL

IN ACCORDANCE WITH NEC SECTION 450-9, ALLOW AT LEAST SIX INCHES  
CLEARANCE FOR VENTILATION. CHECK ADDITIONAL NEC AND LOCAL CODES.

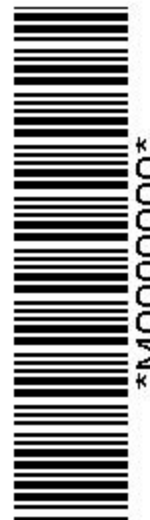
X3 - X2 - X1 - -  
- H3 - H2 - H1

Note: X0 Terminal at the bottom

X1 - H1  
X2 - H2  
X3 - H3  
X0



\*M0000000\*



\*M0000000\*

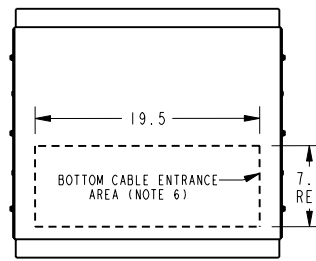


# GENERAL ELECTRIC

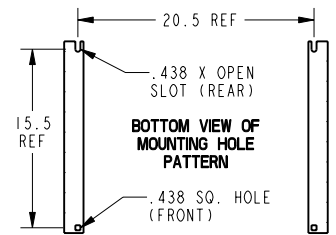
## DRY TYPE TRANSFORMERS

### NOTES:

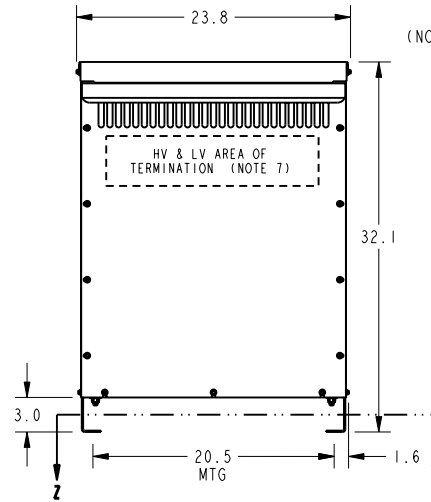
- 1) ALL UNITS ARE UL LISTED AND ARE DESIGNED IN ACCORDANCE WITH ANSI C89.2 AND NEMA ST-20 STANDARDS.
- 2) TRANSFORMERS UTILIZE A UL RECOGNIZED 220°C INSULATION SYSTEM. THE TEMPERATURE RISE(S) FOR THE SPECIFIC KVA RATINGS REFERENCED IN THE TABLE BELOW ARE DETERMINED WHEN THE TRANSFORMER IS MOUNTED IN A STANDARD ENCLOSURE.
- 3) TRANSFORMERS ARE DESIGNED FOR FLOOR MOUNTING. OPTIONAL WALL MOUNTING BRACKETS ARE AVAILABLE FOR THE TRANSFORMER SIZES REFERENCED IN THE TABLE BELOW.
- 4) TRANSFORMERS ARE DRY TYPE, CLASS AA, WITH VENTILATED ENCLOSURES FOR INDOOR USE. OPTIONAL RAINSHIELD KITS ARE AVAILABLE TO ADAPT ALL SIZES FOR TYPE 3R OUTDOOR USE WITHOUT VOIDING THE WARRANTY.
- 5) APPLICABLE WHEN OPTIONAL RAINSHIELDS ARE INSTALLED. RAINSHIELDS ARE SHIPPED IN KITS FOR FIELD INSTALLATION.
- 6) CABLE ENTRANCE IS PERMITTED THROUGH THE LEFT SIDE, RIGHT SIDE AND/OR BOTTOM ENCLOSURE PANELS ONLY. CABLE ENTRANCE IS NOT PERMITTED THROUGH THE FRONT, REAR OR TOP PANELS.
- 7) 0.406" DIA HOLES ARE PROVIDED FOR CUSTOMER TERMINATION.
- 8) FOR LIFTING, OTHER THAN WITH A FORK TRUCK, REMOVE TOP COVER AND USE 1" DIAMETER HOLES IN THE TOP CORE CLAMPS.
- 9) PAINT COLOR IS ANSI #61 GRAY.
- 10) 6" MINIMUM CLEARANCE IS REQUIRED FROM ALL WALLS.



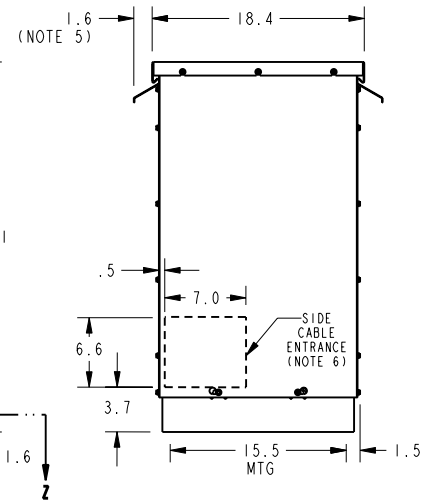
TOP VIEW



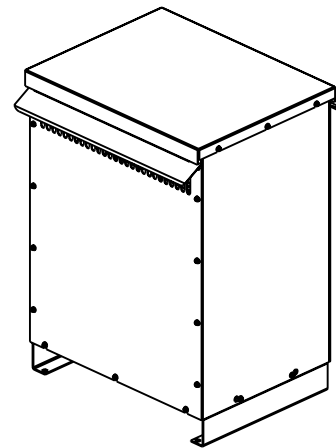
SECTION 2-2



FRONT VIEW



SIDE VIEW



ISOMETRIC VIEW

TYPICAL KVA RATINGS AND TEMPERATURE RISES					
COIL	REF. kVA AT			WEIGHT LBS. (APPROX.)	dB LEVEL
	150°C RISE	115°C RISE	80°C RISE		
ALUMINUM	30	30	15	334	45
COPPER	30	30	15	377	

QTY.	COIL CONDUCTOR	kVA	TEMP RISE	VOLTAGE		TAPS
				PRIMARY	SECONDARY	

CUSTOMER	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES				<b>GENERAL ELECTRIC COMPANY</b> GE Consumer & Industrial	
JOB NAME	OUTLINE DRAWING (ENCLOSED UNIT) TPI, 3 PHASE					
LINE #	CATALOG NO. <b>9T83B3872G15</b>					
DESIGNATION	REV. <b>3</b>					
DRW NO. <b>303B401AAP072</b>	SHEET 1 OF 3					

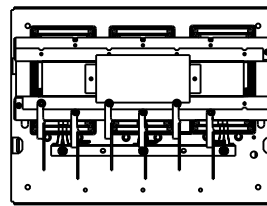


# GENERAL ELECTRIC

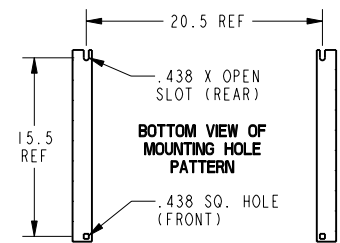
## DRY TYPE TRANSFORMERS

### NOTES:

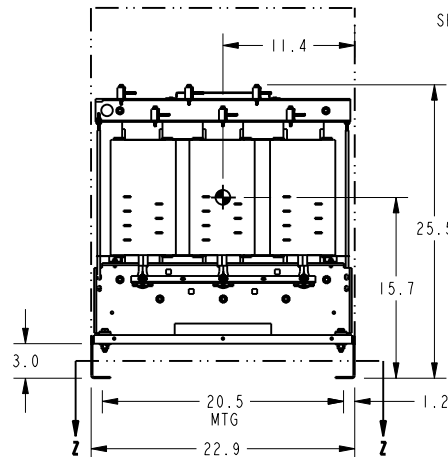
- 1) ALL UNITS ARE UL LISTED AND ARE DESIGNED IN ACCORDANCE WITH ANSI C89.2 AND NEMA ST-20 STANDARDS.
- 2) TRANSFORMERS UTILIZE A UL RECOGNIZED 220°C INSULATION SYSTEM. THE TEMPERATURE RISE(S) FOR THE SPECIFIC kVA RATINGS REFERENCED IN THE TABLE BELOW ARE DETERMINED WHEN THE TRANSFORMER IS MOUNTED IN A STANDARD ENCLOSURE.
- 3) TRANSFORMERS ARE DRY TYPE, CLASS AA, FOR INDOOR USE.
- 4) 0.406" DIA HOLES ARE PROVIDED FOR CUSTOMER TERMINATION.
- 5) FOR LIFTING, OTHER THAN WITH A FORK TRUCK, USE 1" DIAMETER HOLES IN THE TOP CORE CLAMPS.
- 6) BASE PAINT COLOR IS ANSI #61 GRAY.
- 7) 6" MINIMUM CLEARANCE IS REQUIRED FROM ALL WALLS.



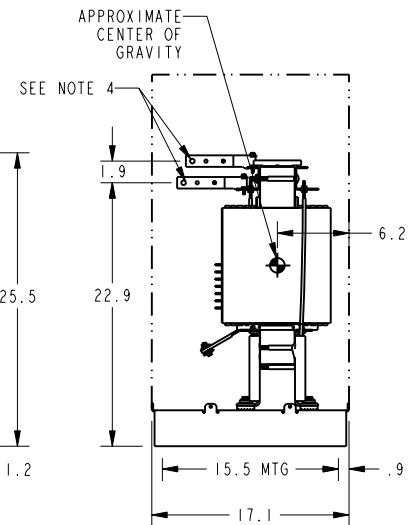
TOP VIEW



SECTION 2-2

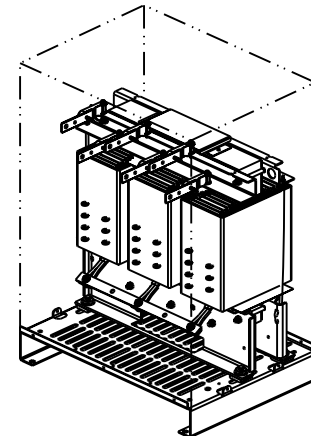


FRONT VIEW



SIDE VIEW

TYPICAL kVA RATINGS AND TEMPERATURE RISES					
COIL	REF. kVA AT			WEIGHT LBS. (APPROX.)	dB LEVEL
	150°C RISE	115°C RISE	80°C RISE		
ALUMINUM	30	30	15	288	45
COPPER	30	30	15	331	



ISOMETRIC VIEW

QTY.	COIL CONDUCTOR	kVA	TEMP RISE	VOLTAGE		TAPS
				PRIMARY	SECONDARY	

CUSTOMER	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES		<b>GENERAL ELECTRIC COMPANY</b> GE Consumer & Industrial  <b>OUTLINE DRAWING</b> (CORE & COIL UNIT WITH BASE) TP1, 3 PHASE	CATALOG NO. <b>9T83B3872G15</b>	REV. <b>3</b>
JOB NAME	THIRD ANGLE PROJECTION				
LINE #					
DESIGNATION					
DRW NO.	303B401AAP072	SHEET 2 OF 3			

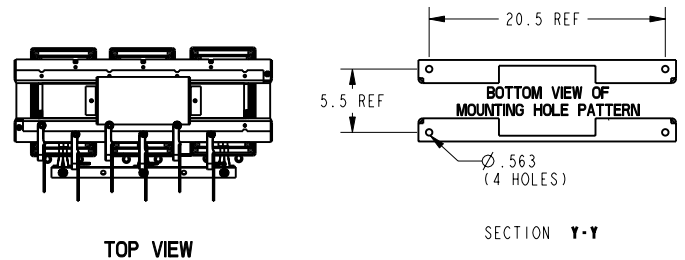


# GENERAL ELECTRIC

## DRY TYPE TRANSFORMERS

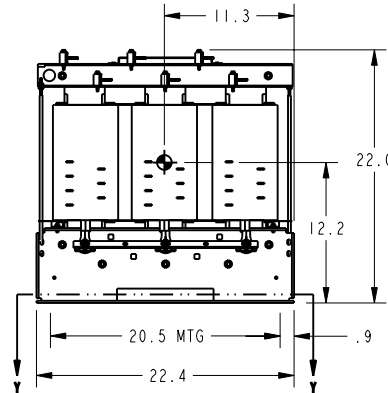
### NOTES:

- 1) ALL UNITS ARE UL LISTED AND ARE DESIGNED IN ACCORDANCE WITH ANSI C89.2 AND NEMA ST-20 STANDARDS.
- 2) TRANSFORMERS UTILIZE A UL RECOGNIZED 220°C INSULATION SYSTEM. THE TEMPERATURE RISE(S) FOR THE SPECIFIC KVA RATINGS REFERENCED IN THE TABLE BELOW ARE DETERMINED WHEN THE TRANSFORMER IS MOUNTED IN A STANDARD ENCLOSURE.
- 3) TRANSFORMERS ARE DRY TYPE, CLASS AA, FOR INDOOR USE.
- 4) 0.406" DIA HOLES ARE PROVIDED FOR CUSTOMER TERMINATION.
- 5) FOR LIFTING, OTHER THAN WITH A FORK TRUCK, USE 1" DIAMETER HOLES IN THE TOP CORE CLAMPS.
- 6) 6" MINIMUM CLEARANCE IS REQUIRED FROM ALL WALLS.

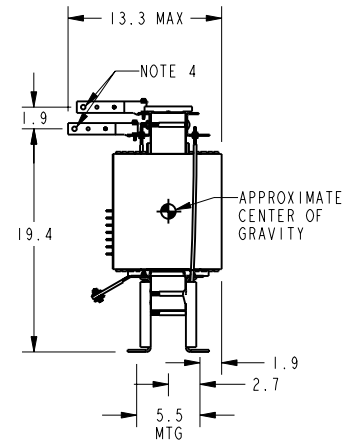


TOP VIEW

SECTION Y-Y

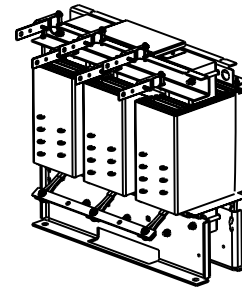


FRONT VIEW



SIDE VIEW

TYPICAL kVA RATINGS AND TEMPERATURE RISES					
COIL	REF. kVA AT			WEIGHT LBS. (APPROX.)	dB LEVEL
	150°C RISE	115°C RISE	80°C RISE		
ALUMINUM	30	30	15	288	45
COPPER	30	30	15	331	



ISOMETRIC VIEW

QTY.	COIL CONDUCTOR	kVA	TEMP RISE	VOLTAGE		TAPS
				PRIMARY	SECONDARY	

CUSTOMER	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES		<b>GENERAL ELECTRIC COMPANY</b> GE Consumer & Industrial
JOB NAME	THIRD ANGLE PROJECTION		
LINE #			
DESIGNATION			
DRW NO. 303B401AAP072	SHEET 3 OF 3		<b>OUTLINE DRAWING</b> (CORE & COIL UNIT WITHOUT BASE) TP1, 3 PHASE
		CATALOG NO. <b>9T83B3872G15</b>	REV. 3



**GE Consumer & Industrial**  
Specialty Transformer  
PO Box 1701  
Ft. Wayne, IN 46801  
(260) 439-2000

**GE MODEL #:**  
**9T83B3873G15**

Underwriters' Laboratories Inc Listed

**RATING:**

AL 3PH 60HZ 45.0KVA 480 +2,-4(2.5%TAPS) 208Y/120

Frame = EE73  
Temp. Rise (C) = 115    Insulation System = 220C  
Average Sound Level (dB) = 45

**LOSS DATA @ 100% LOAD:**

Core Loss or No Load Loss @ 100% voltage (Watts) =	267.0
Impedance Loss or Coil Loss @ Rise + 20C reference (Watts) =	<u>1,646.0</u>
Total Loss @ Rise + 20C reference (Watts) =	1,913.0

**DIELECTRIC AND PRODUCTION TESTING:**

Induce Test @ Twice rated voltage 400 Hz per ANSI C89.2 and NEMA ST-20  
Hipot Test for High Voltage winding to Low Voltage and Ground @ 4000 volts 60 Hz 60 Sec.  
Hipot Test for Low Voltage winding to High Voltage and Ground @ 2500 volts 60 Hz 60 Sec.  
Polarity additive in accordance with ANSI C89.2 and NEMA ST-20

**EFFICIENCY:**

Efficiencies at reference temperature of Rise + 20C (Calculated).

Load (%)	Efficiency (%)
35	at least 97.7

**IMPEDANCE:**

Impedance at reference temperature of Rise + 20C (Calculated).

%R =	3.5
%X =	4.1
%Z =	5.4

**REGULATION:**

Regulation at reference temperature of Rise + 20C (Calculated).

PF	Regulation (%)
1.0	3.4
0.8	5.1





# Transformer



\*M0000000\*

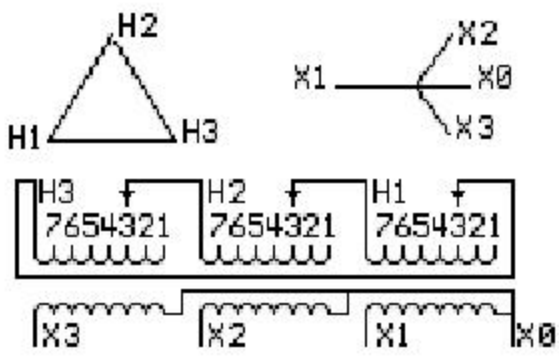
Catalog Number      Type QL

9T83B3873G15

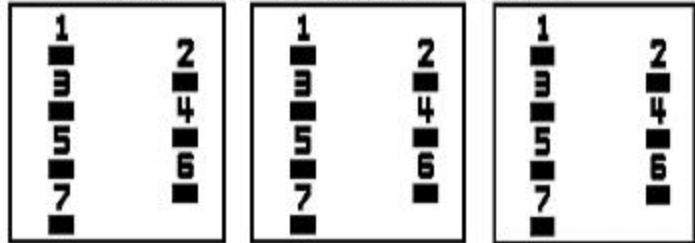
45.0 KVA    60 HZ    3 PH 5.1 % IMP

40 C AMB.    115 C RISE    220 C SYSTEM    IS-19C

PRIMARY (H)    480 VOLTS (LINE-LINE)  
SECONDARY (X)    208 VOLTS (LINE-LINE)  
                          120 VOLTS (LINE-NEUTRAL)



### COIL TAP ARRANGEMENT



### JUMPER CONNECTION

TAP	VOLTS
1	504
2	492
3	480
4	468
5	456
6	444
7	432

### NET WGT

415 LB  
188.2 Kg  
9T83B3873G15  
27410  
KV373  
N0G  
020413

INSPECTION  
&  
FINAL TEST  
N306!



LISTED 769G

ENCLOSURE TYPE 2 (IP30). RAINPROOF TYPE 3R ENCLOSURE (IP32) WHEN PROVIDED SHIELD 9T18Y4317G05

BEFORE HANDLING, INSTALLING AND OPERATING, SEE INSTRUCTION 475A667AAP001      Outline: 303B401AAP073  
ALUMINUM CONDUCTOR      PRIMARY: 10 KV BIL      SECONDARY: 10 KV BIL

IN ACCORDANCE WITH NEC SECTION 450-9, ALLOW AT LEAST SIX INCHES  
CLEARANCE FOR VENTILATION. CHECK ADDITIONAL NEC AND LOCAL CODES.

Assembled in Mexico

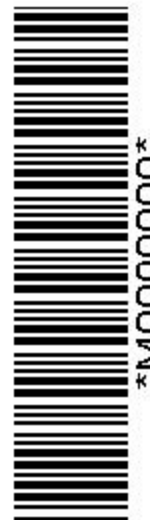
X3 - X2 - X1 - -  
- H3 - H2 - H1

Note: X0 Terminal at the bottom

X1 - H1  
X2 - H2  
X3 - H3  
X0



\*M0000000\*



\*M0000000\*

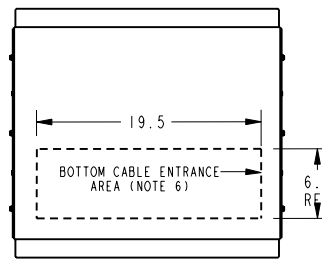


# GENERAL ELECTRIC

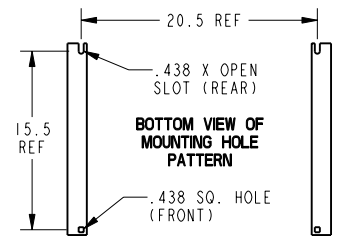
## DRY TYPE TRANSFORMERS

### NOTES:

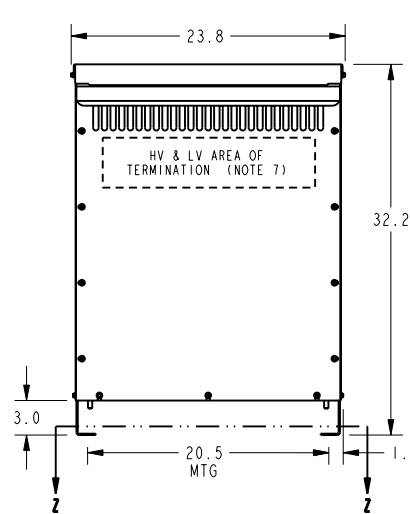
- 1) ALL UNITS ARE UL LISTED AND ARE DESIGNED IN ACCORDANCE WITH ANSI C89.2 AND NEMA ST-20 STANDARDS.
- 2) TRANSFORMERS UTILIZE A UL RECOGNIZED 220°C INSULATION SYSTEM. THE TEMPERATURE RISE(S) FOR THE SPECIFIC KVA RATINGS REFERENCED IN THE TABLE BELOW ARE DETERMINED WHEN THE TRANSFORMER IS MOUNTED IN A STANDARD ENCLOSURE.
- 3) TRANSFORMERS ARE DESIGNED FOR FLOOR MOUNTING. OPTIONAL WALL MOUNTING BRACKETS ARE AVAILABLE FOR THE TRANSFORMER SIZES REFERENCED IN THE TABLE BELOW.
- 4) TRANSFORMERS ARE DRY TYPE, CLASS AA, WITH VENTILATED ENCLOSURES FOR INDOOR USE. OPTIONAL RAINSHIELD KITS ARE AVAILABLE TO ADAPT ALL SIZES FOR TYPE 3R OUTDOOR USE WITHOUT VOIDING THE WARRANTY.
- 5) APPLICABLE WHEN OPTIONAL RAINSHIELDS ARE INSTALLED. RAINSHIELDS ARE SHIPPED IN KITS FOR FIELD INSTALLATION.
- 6) CABLE ENTRANCE IS PERMITTED THROUGH THE LEFT SIDE, RIGHT SIDE AND/OR BOTTOM ENCLOSURE PANELS ONLY. CABLE ENTRANCE IS NOT PERMITTED THROUGH THE FRONT, REAR OR TOP PANELS.
- 7) 0.406" DIA HOLES ARE PROVIDED FOR CUSTOMER TERMINATION.
- 8) FOR LIFTING, OTHER THAN WITH A FORK TRUCK, REMOVE TOP COVER AND USE 1" DIAMETER HOLES IN THE TOP CORE CLAMPS.
- 9) PAINT COLOR IS ANSI #61 GRAY.
- 10) 6" MINIMUM CLEARANCE IS REQUIRED FROM ALL WALLS.



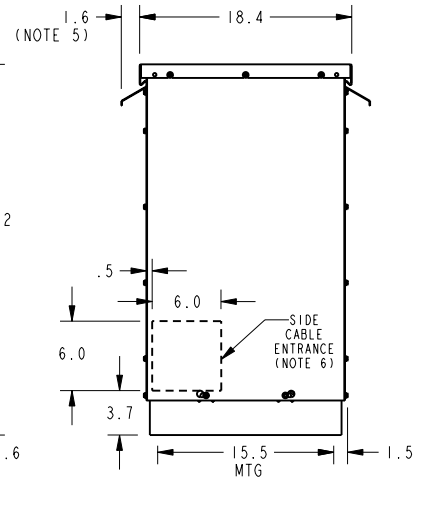
TOP VIEW



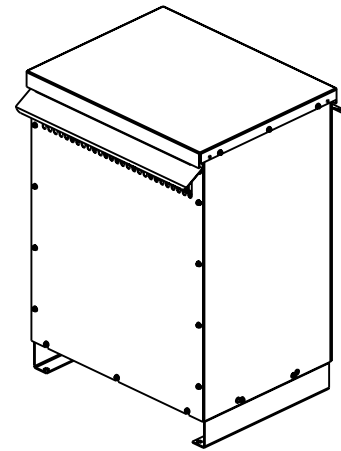
SECTION 2-2



FRONT VIEW



SIDE VIEW



ISOMETRIC VIEW

### TYPICAL kVA RATINGS AND TEMPERATURE RISES

COIL	REF. kVA AT			WEIGHT LBS. (APPROX.)	dB LEVEL
	150°C RISE	115°C RISE	80°C RISE		
ALUMINUM	45	45	30	415	45
COPPER	45	45	30	490	

QTY.	COIL CONDUCTOR	kVA	TEMP RISE	VOLTAGE		TAPS
				PRIMARY	SECONDARY	

CUSTOMER	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES			GENERAL ELECTRIC COMPANY	
JOB NAME	THIRD ANGLE PROJECTION			GE Consumer & Industrial	
LINE #				OUTLINE DRAWING (ENCLOSED UNIT) TPI, 3 PHASE	
DESIGNATION				CATALOG NO.	9T83B3873G15
DRW NO.	303B401AAP073	SHEET 1 OF 3			

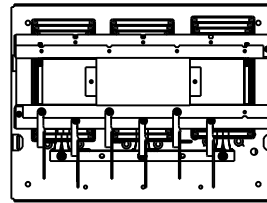


# GENERAL ELECTRIC

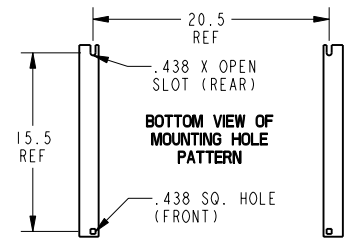
## DRY TYPE TRANSFORMERS

### NOTES:

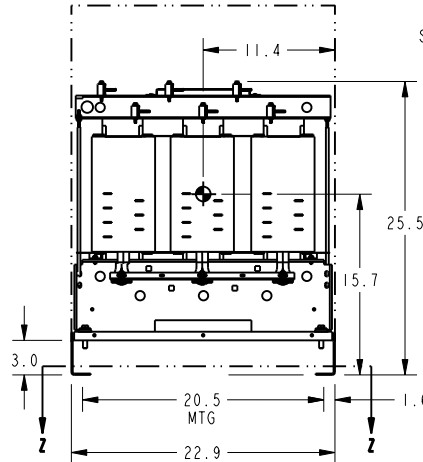
- 1) ALL UNITS ARE UL LISTED AND ARE DESIGNED IN ACCORDANCE WITH ANSI C89.2 AND NEMA ST-20 STANDARDS.
- 2) TRANSFORMERS UTILIZE A UL RECOGNIZED 220°C INSULATION SYSTEM. THE TEMPERATURE RISE(S) FOR THE SPECIFIC KVA RATINGS REFERENCED IN THE TABLE BELOW ARE DETERMINED WHEN THE TRANSFORMER IS MOUNTED IN A STANDARD ENCLOSURE.
- 3) TRANSFORMERS ARE DRY TYPE, CLASS AA, FOR INDOOR USE.
- 4) 0.406" DIA HOLES ARE PROVIDED FOR CUSTOMER TERMINATION.
- 5) FOR LIFTING, OTHER THAN WITH A FORK TRUCK, USE 1" DIAMETER HOLES IN THE TOP CORE CLAMPS.
- 6) BASE PAINT COLOR IS ANSI #61 GRAY.
- 7) 6" MINIMUM CLEARANCE IS REQUIRED FROM ALL WALLS.



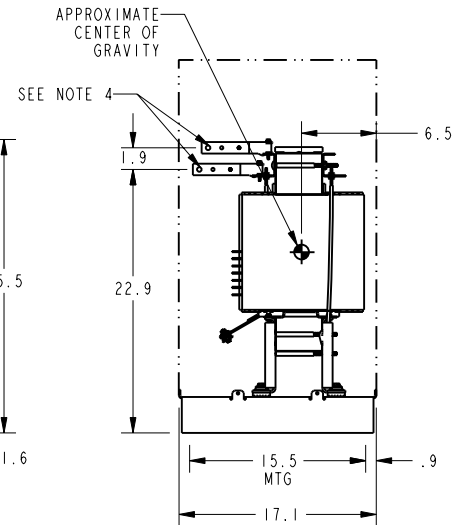
TOP VIEW



SECTION Z-Z

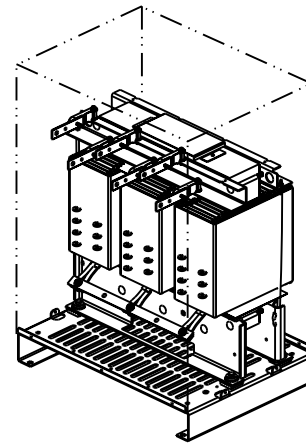


FRONT VIEW



SIDE VIEW

TYPICAL kVA RATINGS AND TEMPERATURE RISES					
COIL	REF. kVA AT			WEIGHT LBS. (APPROX.)	dB LEVEL
	150°C RISE	115°C RISE	80°C RISE		
ALUMINUM	45	45	30	369	45
COPPER	45	45	30	444	



ISOMETRIC VIEW

QTY.	COIL CONDUCTOR	kVA	TEMP RISE	VOLTAGE		TAPS
				PRIMARY	SECONDARY	

CUSTOMER	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES		<b>GENERAL ELECTRIC COMPANY</b> GE Consumer & Industrial
JOB NAME	THIRD ANGLE PROJECTION		
LINE #			
DESIGNATION			
DRW NO.	303B401AAP073	SHEET 2 OF 3	CATALOG NO. <b>9T83B3873G15</b>
			REV. 3

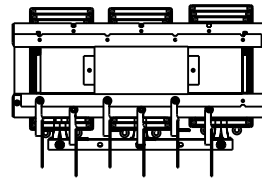


# GENERAL ELECTRIC

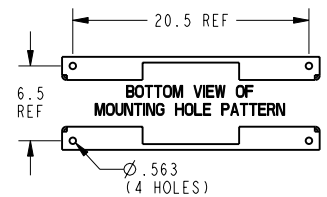
## DRY TYPE TRANSFORMERS

### NOTES:

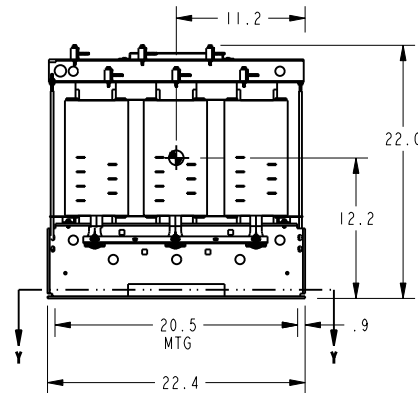
- 1) ALL UNITS ARE UL LISTED AND ARE DESIGNED IN ACCORDANCE WITH ANSI C89.2 AND NEMA ST-20 STANDARDS.
- 2) TRANSFORMERS UTILIZE A UL RECOGNIZED 220°C INSULATION SYSTEM. THE TEMPERATURE RISE(S) FOR THE SPECIFIC kVA RATINGS REFERENCED IN THE TABLE BELOW ARE DETERMINED WHEN THE TRANSFORMER IS MOUNTED IN A STANDARD ENCLOSURE.
- 3) TRANSFORMERS ARE DRY TYPE, CLASS AA, FOR INDOOR USE.
- 4) 0.406" DIA HOLES ARE PROVIDED FOR CUSTOMER TERMINATION.
- 5) FOR LIFTING, OTHER THAN WITH A FORK TRUCK, USE 1" DIAMETER HOLES IN THE TOP CORE CLAMPS.
- 6) 6" MINIMUM CLEARANCE IS REQUIRED FROM ALL WALLS.



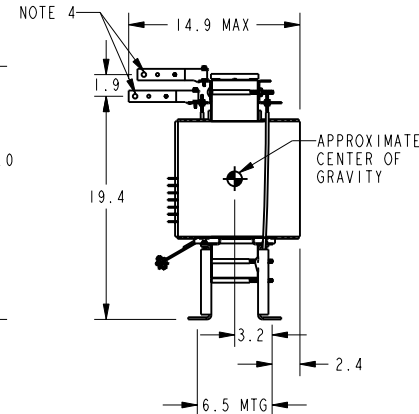
TOP VIEW



SECTION Y-Y

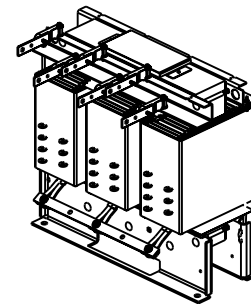


FRONT VIEW



SIDE VIEW

TYPICAL kVA RATINGS AND TEMPERATURE RISES					
COIL	REF. kVA AT			WEIGHT LBS. (APPROX.)	dB LEVEL
	150°C RISE	115°C RISE	80°C RISE		
ALUMINUM	45	45	30	369	45
COPPER	45	45	30	444	



ISOMETRIC VIEW

QTY.	COIL CONDUCTOR	kVA	TEMP RISE	VOLTAGE		TAPS
				PRIMARY	SECONDARY	

CUSTOMER	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES		<b>GENERAL ELECTRIC COMPANY</b> GE Consumer & Industrial  <b>OUTLINE DRAWING</b> (CORE & COIL UNIT WITHOUT BASE) TP1, 3 PHASE
JOB NAME	THIRD ANGLE PROJECTION		
LINE #			
DESIGNATION			
DRW NO. 303B401AAP073	SHEET 3 OF 3	CATALOG NO. <b>9T83B3873G15</b>	REV. 3

# QL Dry Type Transformers

Up to 99% efficient  
100% tested



imagination at work

# QL Dry Type Transformers

Our QL transformers are setting new standards for quality – in design, manufacturing and testing. Before leaving the GE factory, every QL transformer must pass a series of rigorous tests, performed with advanced equipment, on a range of measurements.



We test for:

- **Shorts and coil integrity** to help ensure high initial quality and years of trouble-free operation
- **Current and loss** to help ensure peak efficiency, low noise and the lowest operating cost possible
- **Voltage** to help ensure that input and output voltages are exactly as specified
- **Impedance** to help ensure the transformer is producing power that's friendly to your building and equipment

That's why you can be sure you'll get the highest initial quality and years of trouble-free operation.

## All QL transformers feature:

- NEMA TP-1 2002 compliance
- Clear, comprehensive documentation and labeling
- Single-piece front/back for easier service
- Accessible mounting flanges with front/back slotted mounting holes to speed installation
- Seismic qualifications to the requirements of ASCE 7.05, IEEE-693-2005 and IBC-2006
- 200% neutral standard
- Copper ground strap standard
- Full capacity, universal taps consisting of two 2.5% above nominal and four 2.5% below nominal
- Robust packaging with top and edge protection
- 220°C insulation system
- 40°C ambient
- 10kV-BIL
- Copper or aluminum windings
- UL Listing
- Standard NEMA 2 drip-proof enclosure with optional weathershield kit for conversion to NEMA 3R outdoor
- NEMA 3R stainless steel (Type 316) enclosure is available up to 150kVA
- A one-year limited warranty

## NEW QL Ultra Efficient Up to 99% efficient

More energy efficient than the TP-1 design, the QL Ultra Efficient transformer – GE's newest – can save customers nearly \$4,000 per year in operating costs, based on a facility the size of an elementary school\*, and help them earn U. S. Green Building Council's LEED® certification points on a project. It's significantly quieter than standard transformers and features all of the convenience and reliability you expect from a QL transformer. It's perfect for schools and colleges and for government, healthcare and commercial buildings.

\*Based on upgrading pre-2007 (non-TP-1) GE transformers at an elementary school with 13 transformers, ranging in size from 30kVA to 112.5 kVA and energy costs of \$.077/kwh to the equivalent GE QL Ultra transformers.

## Features and benefits

- Efficiency up to 99% reduces operating cost by 30%
- Meets or exceeds NEMA TP-1, NEMA *Premium* and DOD CSL-3 efficiency
- Low core loss with maximum efficiency under low-load conditions
- Aids in qualifying for more LEED points for sustainable building appeal
- Ultra quiet operation
- Prime-9 offering with all standard options fit many applications
- K1, K4 and K13 models available.
- K-Factor models available in 150°C, 115°C, and 80°C rise
- Ultra efficient harmonic mitigating transformers available in 0° phase shift and -30° phase shift





## QL General Purpose

### ***Reliable, efficient quiet design from a trusted brand***

GE QL general purpose transformers are the brand contractors trust for trouble-free installation and years of reliable service.

#### **Features and benefits**

- Reliable design and quiet performance
  - 3-phase from 15-1000kVA
  - 1-Phase from 15-250kVA
- 

## QL K Factor

### ***How to handle non-linear loads***

K-Factor transformers are more robust than standard transformers, so they are better able to withstand the additional heating that accompanies the presence of harmonics in electrical systems. K-factor transformers are designed not to eliminate harmonics, but to withstand their negative effects.

#### **Features and benefits**

- UL K-Factor Listed. UL 1561 listed
  - Full-width copper electrostatic shielding standard
  - Effective coupling capacitance 30 PF between primary and secondary
- 

## QL Guard I, II, III Noise Isolation

### ***Extra protection for sensitive equipment***

Installations with sensitive electronic equipment – computer rooms, x-ray rooms, electrical laboratories, etc. – need the extra protection offered by GE's Guard I, II and III transformers.

#### **Guard I**

- Grounded copper electrostatic shield between primary and secondary windings
- 120dB common-mode noise protection
- 30dB transverse-mode noise protection

#### **Guard II**

- Grounded copper electrostatic shield between primary and secondary windings
- Noise suppressors and spike/surge suppressors
- 120dB common-mode noise protection
- 60dB transverse-mode noise protection



#### **Guard III**

- Saves energy by reducing harmonic losses
- Eliminates transformer overheating and high operating temperatures
- Maintains energy efficiency even when harmonics are present in the electrical system
- Helps eliminate power quality problems that K-factor transformers do not

## QL Totally Enclosed Non-Ventilated (TENV)

Totally Enclosed Non-Ventilated (TENV) transformers are an excellent choice for applications where standard dry-type transformer enclosure openings are not acceptable because dust, dirt or lint may be present or because transformers are subject to sprays or controlled wash-down conditions.

#### **Features and benefits**

- Convenient wiring compartment beneath the transformer has removable front and rear covers
- Clearly labeled copper bus bars are located at the front of the wiring compartment
- All electrical connections between the transformer and bus bars are factory wired



## QL Drive Isolation Transformers (DIT)

### ***Built for SCR stresses***

QL Drive Isolation Transformers (DIT) are designed specifically to handle the use of SCR control circuitry of adjustable-speed drives. Symmetrically placed taps and added coil bracing are able to withstand the mechanical forces involved. They also reduce line pollution feedback resulting from SCR firing circuits.

#### **Features and benefits**

- Voltages up to 600V
- Conforms to ANSI, NEMA, UL and IEEE standards
- 3-15 KVA 3 phase and 5-25 KVA 1 phase



## QL Low Noise

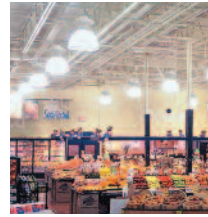
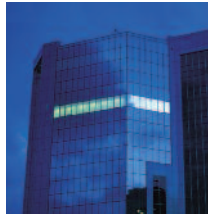
### ***The quiet performers***

These low noise transformers operate at reduced noise levels. The vibrations within the magnetic steel core have been greatly reduced, thus reducing transformer hum. QL Low-Noise transformers operate at 3dB less than NEMA/ANSI standards.

#### **Features and benefits**

- Great for noise-sensitive areas
- Operation at -3dB below NEMA standard
- 150°C, 115°C or 80°C rise

# QL Transformer Selection Guide



Application	QL General Purpose	QL Ultra Efficient	QL K - Factor (K=4)	QL K - Factor (K=13)	QL K - Factor (K=20)	QL K - Factor (K=30)	QL Low Noise	QL Drive Isolation
AC or DC variable speed drives								■
Computer installations					■	■		
Critical care facilities					■	■	■	
Data processing equipment circuits					■	■		
HID lighting			■					
Hospital operating rooms					■	■		
Incandescent lighting	■		■					
Induction heaters			■					
Instrumentation					■	■		
LEED projects		■						
Maximum energy efficiency		■						
Motor generators (without solid state drives)	■		■					
Motors	■		■					
Multiple receptacle circuits in health care facilities				■				
Office buildings		■		■			■	
PLC & solid state controls			■					
Production or assembly line equipment				■				
Programmable controllers					■	■		
Rectifier outputs								■
Resistance heating	■		■					
Schools & classroom facilities		■		■			■	
SCR variable speed drives					■	■		
UPS with optional input filtering			■					
UPS without optional input filtering				■				
Welders			■					
X-ray equipment					■	■		

LEED is a registered trademark of the U.S. Green Building Council.

Information provided is subject to change without notice. Please verify all details with GE. All values are design or typical values when measured under laboratory conditions, and GE makes no warranty or guarantee, express or implied, that such performance will be obtained under end-use conditions.

## GE Energy

41 Woodford Avenue  
Plainville, CT 06062  
www.geindustrial.com

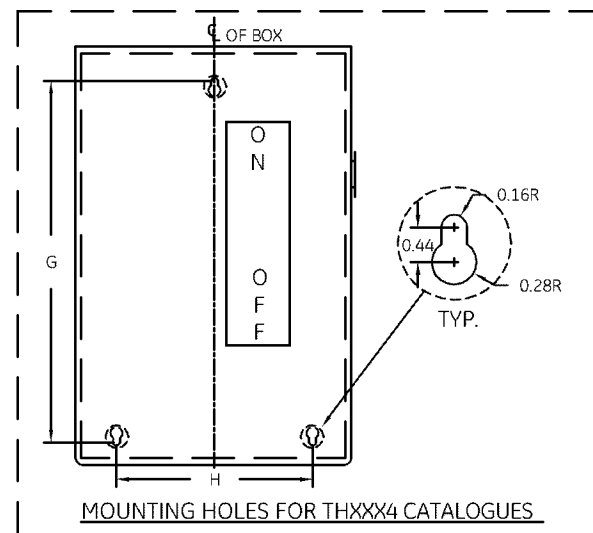
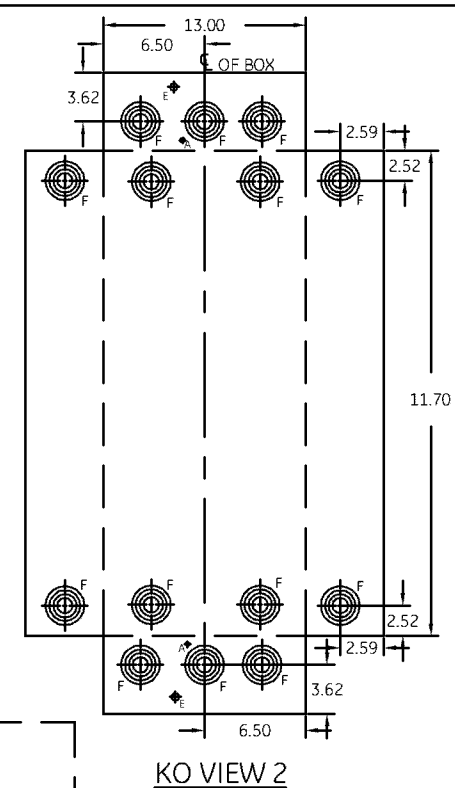
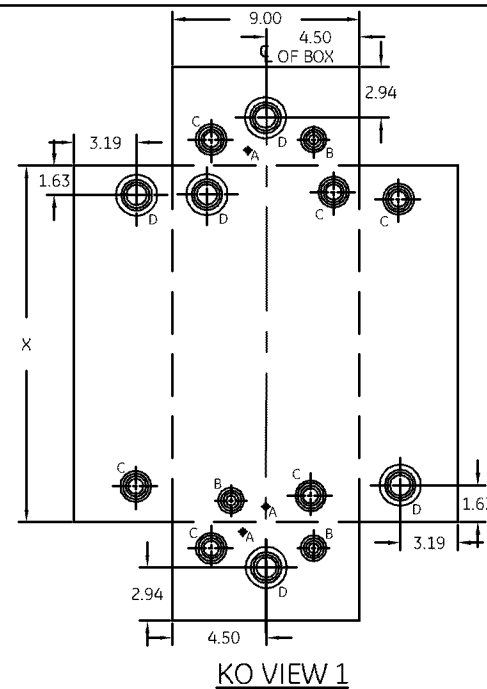
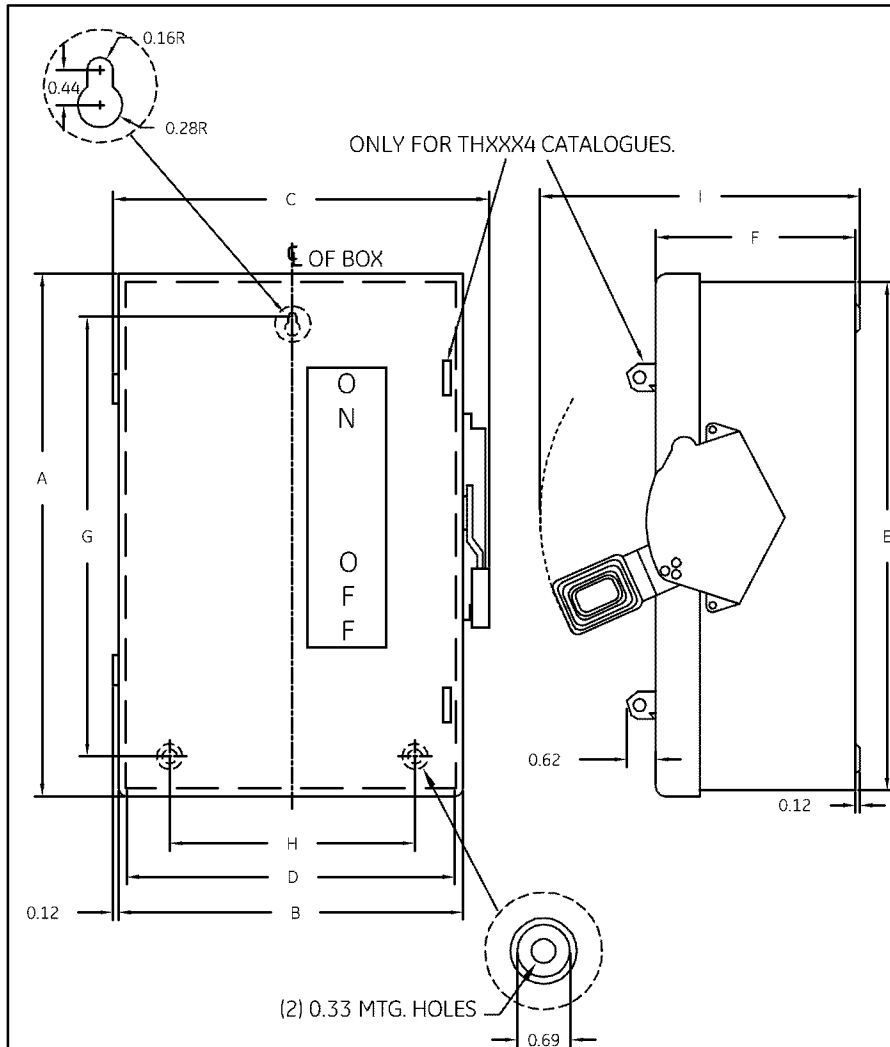
© 2011 General Electric Company



imagination at work



# SAFETY SWITCHES



NOTE:  
1. ALL DIMENSIONS ARE IN INCHES.  
2. ALL DIMENSIONS HAVE  $\pm 0.125$  TOLERANCE.

DIMENSION TABLE

GCAT NO.	KO VIEW	A	B	C	D	E	F	G	H	I	X
TH3224 / TH3224C TH4324 / TH4324C TH3364	2	31.50	13.31	14.11	13.11	31.30	5.06	28.35	11.00	10.53	-
THN3364 / THN3364C	2	31.50	13.31	14.11	13.11	31.30	5.06	28.35	11.00	10.53	-
TH4323 / TH3223	1	21.33	9.32	10.12	9.11	21.05	4.81	19.56	7.51	9.78	20.94
THN3363	1	17.58	9.32	10.12	9.11	17.30	4.81	15.81	7.51	9.78	17.19
TH3363	1	22.33	9.32	10.12	9.11	22.05	4.81	20.56	7.51	9.78	21.94

KNOCKOUT TABLE

SYM.	SIZE	QTY.	
		VIEW 1	VIEW 2
A	9/32 KO	3	2
B	1/2 X 3/4 X 1 X 1 1/4 KO	3	-
C	3/4 X 1 X 1 1/4 X 1 1/2 KO	6	-
D	1 X 1 1/4 X 1 1/2 X 2 KO	5	-
E	1/2 KO	-	2
F	1 X 1 1/2 X 2 X 2 1/2 KO	-	14



imagination at work

OUTLINE DRAWING-HEAVY DUTY SAFETY SWITCH  
100 & 200A, NEMA -TYPE 1 ENCLOSURE

DWG NO.	DATE	REV
10103091SH105	07/16/2012	04

Catalog #: TH3363

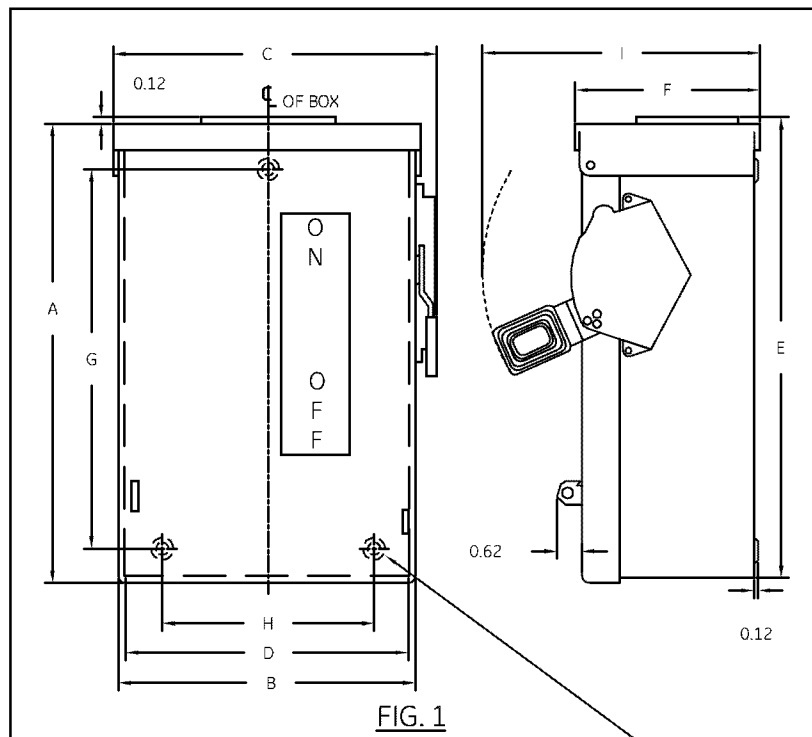
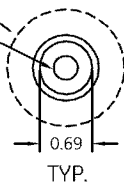


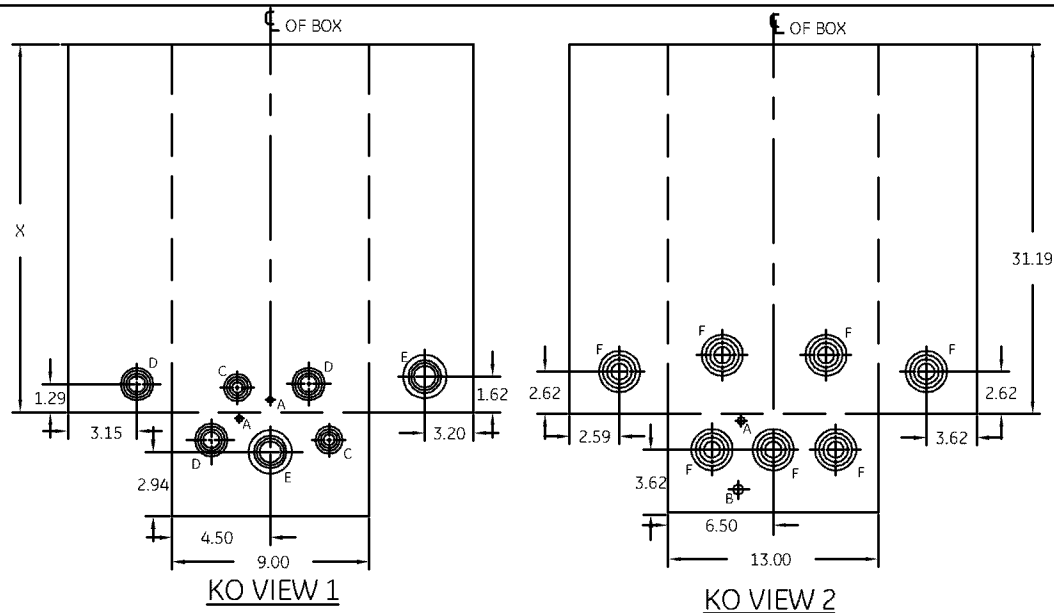
FIG. 1

- NOTE:
1. ALL DIMENSIONS ARE IN INCHES.
  2. ALL DIMENSIONS HAVE  $\pm 0.125$  TOLERANCE.

0.33 MTG. HOLES



TYP.



KO VIEW 1

KO VIEW 2

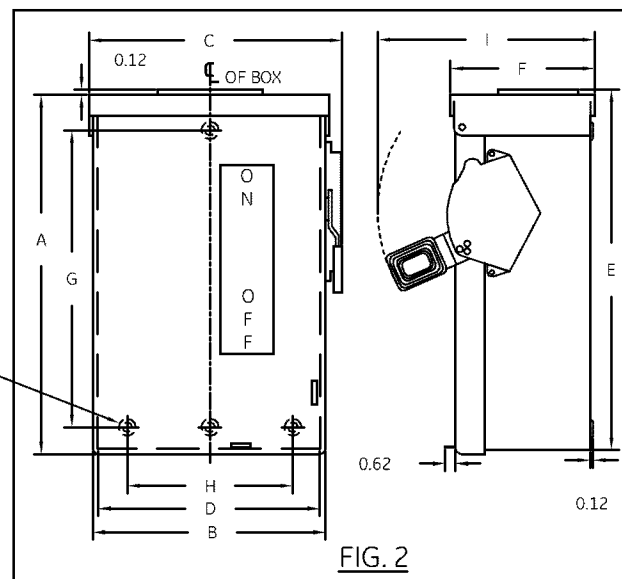


FIG. 2

DIMENSION TABLE

GCAT NO.	FIG.	KO VIEW	A	B	C	D	E	F	G	H	I	X
TH3224R/TH3224RC TH4324R/TH4324RC TH3364R/TH4364RC THN3364R	2	2	31.31	13.38	14.18	13.11	31.44	5.11	27.18	11.27	9.50	-
THN3363R	1	1	17.30	9.33	10.20	9.11	17.44	4.86	14.96	7.50	9.75	17.19
TH3363R TH4323R TH3223R	1	1	22.05	9.33	10.20	9.11	22.19	4.86	17.81	7.50	9.75	21.94

KNOCKOUT TABLE

SYM.	SIZE	QTY.	
		VIEW 1	VIEW 2
A	9/32 KO	2	1
B	1/2 KO	-	1
C	1/2 X 3/4 X 1 X 1 1/4 KO	2	-
D	3/4 X 1 X 1 1/4 X 1 1/2 KO	3	-
E	1 X 1 1/4 X 1 1/2 X 2 KO	2	-
F	1 X 1 1/2 X 2 X 2 1/2 KO	-	7



imagination at work

OUTLINE DRAWING-HEAVY DUTY SAFETY SWITCH  
100 & 200A, NEMA -TYPE 3R ENCLOSURE

DWG NO.	DATE	REV
10103091SH106	07/16/2012	04

Catalog #: TH3364R

GE  
Electrical Distribution

# Spec Setter™ Safety Switches

We help you get the job done right!



imagination at work

General Electric's Spec Setter™ safety switches are available for all your disconnect needs, no matter what the application.

GE offers a wide variety of general duty switches for residential and light commercial purposes, while our extensive line of heavy duty switches is best suited for commercial and industrial applications. For the toughest industrial environments – like cement foundries, steel mills and processing plants – mill duty switches are available. We also offer a variety of double throw switches for emergency generators.

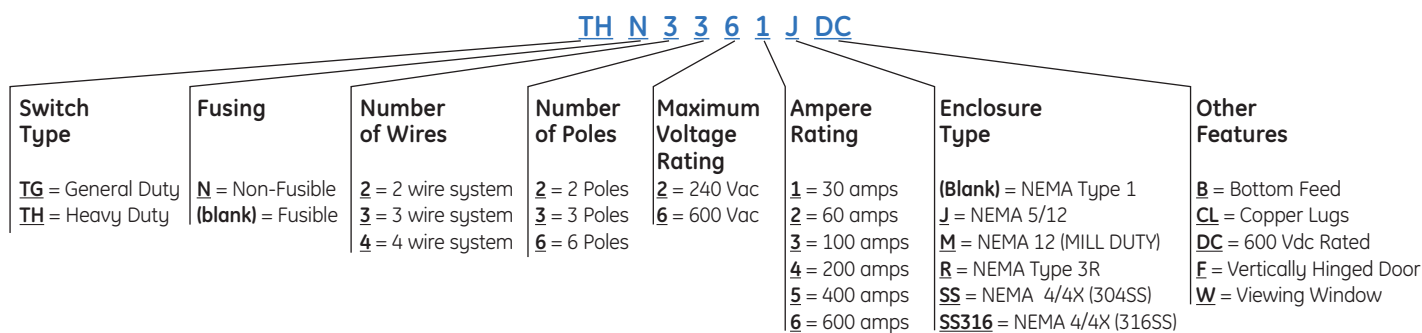
No matter what the application, we've got you covered with a rugged, reliable and easy-to-install Spec Setter™ safety switch. When it comes to getting the job done right, you can count on GE!



## GE Safety Switches at a Glance

NEMA Type Enclosure	Type	30 A	60 A	100 A	200 A	400 A	600 A	800 A	1200 A	
1	General Duty	2 & 3 Pole (Fusible) 240Vac								
		3 Pole (Non-Fusible) 240Vac								
	Heavy Duty	2 & 3 Pole (Fusible) 240Vac								
		2 Pole (Fusible & Non-Fusible) 600Vdc								
		3 Pole (Fusible & Non-Fusible) 600Vac								
	Double-Throw	3 Pole (Non-Fusible) 240Vac & 600Vac								
		3 Pole (Fusible) 240Vac								
		3 Pole (Fusible) 600Vac								
3R	General Duty	2 Pole (Non-Fusible) 240Vac								
	Heavy Duty	2 & 3 Pole (Fusible) 240Vac								
		2 Pole (Fusible & Non-Fusible) 600Vdc								
		3 Pole (Fusible) 600Vac								
		3 Pole (Non-Fusible) 600Vac								
	Double-Throw				3 Pole (Fusible) 600Vac					
					2 Pole (Non-Fusible) 120/240Vac					
		3 Pole (Non-Fusible) 240Vac								
3 Pole (Fusible) 240Vac										
3 Pole (Non-Fusible) 600Vac										
4/4X	Heavy Duty	2 & 3 Pole (Fusible) 240Vac								
		2 Pole (Fusible & Non-Fusible) 600Vdc								
		3 Pole (Fusible) 600Vac								
		3 Pole (Non-Fusible) 600Vac								
	Mill Duty	2 & 3 Pole (Fusible) 240Vdc								
		2 Pole (Fusible & Non-Fusible) 600Vdc								
		3 Pole (Fusible & Non-Fusible) 600Vac								
5/12	Heavy Duty	2 & 3 Pole (Fusible) 240Vac								
		2 Pole (Fusible & Non-Fusible) 600Vdc								
		3 Pole (Fusible) 600Vac (also available in 3R)								
		3 Pole (Non-Fusible) 600Vac								
12	Mill Duty	2 & 3 Pole (Fusible) 240Vdc								
		2 Pole (Fusible & Non-Fusible) 600Vdc								
		3 Pole (Fusible & Non-Fusible) 600Vac								

## Safety Switch Nomenclature



Nomenclature provided for interpreting product numbers only.

# General Duty Safety Switches

GE's Type TG general duty safety switches are designed for residential and light commercial applications where duty is not severe.

They are available in 30-600 amps, 240 Vac, 250 Vdc maximum in both fusible and non-fusible units, and in NEMA Type 1 (indoor) and Type 3R (outdoor) enclosures. The UL Listed short-circuit rating is 10,000 rms symmetrical amps as standard. When Class R fuses and fuse kits are installed, 30-200 amp switches have a UL

Listed short circuit rating of 100,000 rms symmetrical amps. GE's general duty safety switches are UL Listed as service entrance equipment when installed in accordance with the National Electrical Code.

All GE general duty safety switches are UL Listed and CSA certified (UL98 Enclosed Switches/CSA-C22.2 No. 4-04) and meet NEMA Enclosed Safety Switch Standard KS1-2001.



- 1 Best suited for residential and light commercial applications. Available in indoor (Type 1) and outdoor (Type 3R) enclosures.
- 2 Highly visible ON/OFF label takes the guesswork out of safety and gives a clean, modern appearance.
- 3 Bright red handle is easy to see, easy to grip.
- 4 Direct-drive, quick-make, quick-break mechanism "snaps" the contacts open and closed, providing positive ON/OFF indication while prolonging switch life.
- 5 Wide, unobstructed gutter and removable interior make wire pulling and lug connections quick and easy.
- 6 Three-point mounting pattern speeds installation and simplifies ganging in close quarters.
- 7 Plated stationary and movable contacts deliver reliability and long life.
- 8 Galvanized steel enclosure offers superior rust protection in outdoor applications. There's also a durable polyester powder-coat finish.
- 9 Plated blades provide visible confirmation of contact position.

## Heavy Duty Safety Switches

GE's Type TH heavy duty safety switches are designed for commercial and industrial applications where safety, high performance and continuity of service are essential.

Heavy duty switches are available in 30-1200 amps, 600 Vac, 600 Vdc maximum, fusible and non-fusible units, and in NEMA Type 1 (indoor), Type 3R (outdoor), Type 4/4X (water and dust-tight, corrosion resistant), and Type 5/12 (drip and dust-tight) enclosures. When used with Class R or J fuses, 30-600 amp switches have a UL Listed short-circuit rating of 200,000 rms symmetrical amps. Switches rated 800-1200 amps use

Class L fuses and have a UL Listed short circuit rating of 100,000 rms symmetrical amps. GE's heavy duty safety switches are UL Listed as service entrance equipment when installed in accordance with the National Electrical Code.

All GE heavy duty safety switches are UL Listed and CSA certified (UL98 Enclosed Switches/CSA-C22.2 No. 4-04), meet Federal Specification WS-865C for heavy duty switches and meet NEMA Enclosed Safety Switch Standard KS1-2001.



- 1 Best suited for commercial and industrial applications.
- 2 Highly visible ON/OFF label takes the guesswork out of safety and gives a clean, modern appearance.
- 3 Bright red "donut" handle, molded from rugged SE1 Noryl thermoplastic, is easy to see, easy to grip and ideal for hook stick operation. It accepts three padlocks in OFF position.
- 4 Coin-proof, defeatable dual interlocks meet all safety inspection requirements.
- 5 Wide, unobstructed gutter and removable interior make wire pulling and lug connections quick and easy.
- 6 Three-point mounting pattern speeds installation and simplifies ganging in close quarters.
- 7 Exclusive SE1 Noryl thermoplastic arc shield helps provide maximum UL Listed horsepower ratings while guarding against accidental contact with live parts.
- 8 Accessories, such as auxiliary switch kits, are UL Listed for quick and easy field installation (or they may be factory installed).
- 9 Plated blades provide visible confirmation of contact position.
- 10 Direct-drive, quick-make, quick-break mechanism "snaps" the contacts open and closed, providing positive ON/OFF indication while prolonging switch life.
- 11 Spring-reinforced fuse clips assure reliable contact for cool operation. Suitable for Class H, K, J or R fuses.
- 12 Cu-Al lugs are 60/75°C rated to permit greater wire selection.
- 13 Galvanized steel enclosure offers superior rust protection in outdoor applications. There's also a durable polyester powder-coat finish.



## Mill Duty Safety Switches

GE's mill duty safety switches are designed specifically for the rugged conditions found in steel mills, cement foundries and other process-related environments.

Mill duty switches are available in 30-600 amps, 600 Vac, 600 Vdc maximum, fusible and non-fusible units, and in NEMA Type 4/4X (water and dust-tight, corrosion resistant) and Type 12 (drip and dust-tight) enclosures. Horsepower ratings are to UL Listed maximums; published I<sup>2</sup>t ratings are available. Short circuit ratings

are UL Listed to 200,000 rms symmetrical amps when Class J or R fuses are installed.

All GE mill duty safety switches are UL Listed and CSA certified (UL98 Enclosed Switches/CSA-C22.2 No. 4-04), meet Federal Specification WS-865C for heavy duty switches and meet NEMA Enclosed Safety Switch Standard KS1-2001.



- 1 Best suited for rugged environmental conditions such as mills and foundries.
- 2 Bright red "donut" handle molded from rugged SE1 Noryl thermoplastic is easy to see, easy to grip and ideal for hook stick operation. It accepts three padlocks in OFF position.
- 3 Manual interlock defeat lever permits contact inspection when switch is OFF.
- 4 Standard NEMA 12 enclosure protects interior from dust, lint, fibers, coolants, metal filings and other non-corrosive contaminants. Stainless steel NEMA 4/4X enclosure additionally shields interior from hose directed water, splashing and falling liquids. Interlocks on all enclosure covers assure gasket compression before switch can be turned ON.
- 5 Efficient space-saving enclosures, three-point mounting, unobstructed side wiring gutter, easily removable cover and interior.
- 6 Spring-reinforced fuse clips assure reliable contact for cool operation. Suitable for Class H, K, J or R fuses.
- 7 Equipment ground lugs provided. Lugs approved for both copper and aluminum wire; 60/75°C rated tang lugs are field convertible to compression (crimp) connectors.
- 8 Highly visible ON/OFF label takes the guesswork out of safety and gives a clean, modern appearance.

## Double-Throw Safety Switches



- 1 Bright red "donut" handle molded from rugged SE1 Noryl thermoplastic is easy to see, easy to grip and ideal for hook stick operation.
- 2 Highly visible ON/OFF label takes the guess-work out of safety and gives a clean, modern appearance.
- 3 Three position (ON-OFF-ON) handle is lockable.
- 4 Lockable cover latch and defeatable interlock meet all safety inspection requirements.

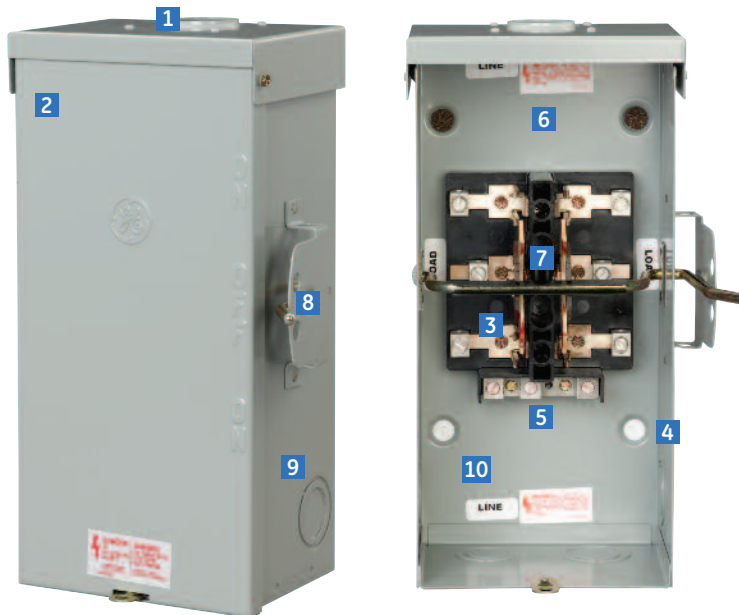
GE's Type TC and TDT double-throw safety switches are designed for applications where safety, high performance and continuity of service are essential.

Double-throw switches are available in 30-600 amps, 600 Vac, 250 Vdc maximum in fusible and non-fusible construction, and in NEMA Type 1 (indoor) and Type 3R (outdoor) enclosures. GE's double-throw safety switches

are UL Listed as service entrance equipment when installed in accordance with the National Electrical Code.

All GE double-throw safety switches are UL Listed (UL98 Enclosed Switches) and meet NEMA Enclosed Safety Switch Standard KS1-2001 for type HD 30-200 amps and type GD 400-600 amps.

## Emergency Power Transfer Switches



- 1 A wide range of interchangeable rain-tight conduit hubs are available.
- 2 Code-gauge steel box is fitted with a drip-shield for protection against rain; resists corrosion, rust and chipping.
- 3 Plated copper current-carrying parts prevent oxidation to assure low-resistance contact and cool operation.
- 4 Mounting holes permit quick, easy installation.
- 5 Bonding strap can be used to ground neutral for service entrance applications.
- 6 Ample wiring space provided within compact enclosure.
- 7 Positive make and break is provided by fiber loop straps between knife blade contacts and one-piece operating yoke.
- 8 Provision for handle locking in ON or OFF position protects against accidental contact with live parts.
- 9 Concentric knockouts are conveniently located, easy to remove.
- 10 Galvanized steel enclosure, offers superior rust protection in outdoor applications. There's also a durable polyester powder-coat finish.

GE's Type TC emergency power transfer switches are specifically designed to permit the connection of power from a standby generator or other emergency source of electricity and are ideally suited for outdoor applications in rural dwellings and farm buildings.

Emergency power transfer switches are non fusible and are available in 100-200 amps for 120/240V three-wire

systems and in 200 amps for 240V four-wire systems and in NEMA Type 3R (outdoor) enclosures. The side operated handle can be locked in either the ON or OFF position.

Type TC emergency power transfer switches are UL Listed (UL98 Enclosed Switches) and are suitable for use as service entrance equipment when installed in accordance with the National Electrical Code.

## Enclosure Types

**NEMA 1** enclosures are suitable for indoor use, primarily to provide protection against contact with the enclosed equipment and where unusual service environments do not exist.

**NEMA 3R** enclosures are intended for outdoor use to provide a degree of protection against falling rain, sleet and external enclosure ice formation.

**NEMA 4/4X** enclosures are intended for indoor or outdoor use to provide a degree of protection against windblown dust and rain, and splashing or hose-directed water and external enclosure ice formation. Additionally, these enclosures meet 4X requirements by providing a degree of protection against corrosion.

**NEMA 5/12** enclosures are intended for indoor use primarily to provide a degree of protection against settling airborne and circulating dust, falling dirt and dripping, non-corrosive liquids.

## Accessories

GE safety switches provide a full line of factory and field installable accessories to meet your special requirements.

**Equipment Ground Kits:** available for 30-600 amp safety switches

**Neutral Kits:** available for 30-1200 amp safety switches (insulated, groundable and bondable)

**Crimp Type Connector:** available for 30-600 amp safety switches

**Viewing Window:** available for select 30-200 amp heavy duty safety switches, NEMA Types 4/4X and 5/12

**Auxiliary Contact Kits:** available in both single pole double-throw and double pole double-throw (listed for field installation)

**Class J Fuse Conversion Kits:** available for 600 amp safety switches

**Class R Fuse Kits:** available for 30-600 amp safety switches

**Raintight Aluminum Hubs:** available up to 3" conduit diameter

## Special Purpose GE Safety Switches

GE provides the following special purpose safety switches to satisfy a variety of unique applications:

**Six-Pole Switches:** available in 30-200 amps, 600 Vac, 250 Vdc maximum, fusible or non-fusible, NEMA Type 1 enclosure.

**Interlocked Receptacle Switches:** available in 60 amps, 600 Vac, fusible or non-fusible, NEMA Type 12 enclosure.

**Plug-Fuse Switches:** available in one and two-pole designs, 30 amps, 240 Vac maximum, NEMA Type 1 enclosure.

**Air Conditioner Disconnects:** available in 30-60 amps, fusible or non-fusible, NEMA Type 3R enclosure (steel or thermoplastic available).

Information provided is subject to change without notice. Please verify all details with GE. All values are design or typical values when measured under laboratory conditions, and GE makes no warranty or guarantee, express or implied, that such performance will be obtained under end-use conditions.

GE  
41 Woodford Avenue, Plainville, CT 06062  
www.geelectrical.com  
© 2009 General Electric Company

